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ABSTRACT

Described is a prevocational evaluation and training program which serves 30 educable and trainable mentally handicapped students, 16 to 21 years of age, by simulating actual work conditions and training students in social behaviors, grooming, attitudes, and skills appropriate to a work environment. Procedures are explained for student referral and program admittance through interviews and criteria based grading. Included in the color coded program description are requirements for students' assessments with 20 preskill tests ranging in difficulty from a simple test of color discrimination and shape perception to tests with sheltered workshop standards, such as a packaging exerciseinvolving visual and verbal instructions and identification of two from three dimensional representations. The unit on job sampling and simulated production is said to require students' integration of individual skills to complete 12 monitored and evaluated tests, such as cable clamp assembly or working cooperatively in assembling objects on a line. Given for the unit work program are directions, objectives, materials required, and evaluative procedures for five units in areas such as maid service or custodial training. Included are summaries of tests which are administered after retesting on preskill tests, and procedures for developing a formal evaluation report which is sent to vocational rehabilitation or institutional placement for the student's appropriate employment. Other considerations involve a token economy program after the job sampling phase, and results of studies on reliability and validity of the tests. Included are representative forms, evaluation standards, charts, and illustrations. (MC)

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Dear Manual Recipient:

This evaluation manual is the result of 2+ years of data collection and the efforts of many dedicated staff members. It is intended to be a tool by which to aid you in establishing or improving your own evaluation program.

We feel that this program has many merits but would like some comments from you about discrepancies you might observe (or a few good words if you think it has promise). By enlisting your aid, those things which we fail to see because of "not seeing the forest for the trees" will become apparent to us and we can implement them in the second edition.

Either pro or con, please communicate your impressions to us by letter, phone, or whatever medium you select. If you choose to write your comments in the manual and send it back to us, we will insure that you get a copy of the second edition of same.

If I can help you in any way, please do not hesitate to call on me.

Bill Farrar

Bill Farrar
Director, Vocational Education

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THIS MANUAL WAS DESIGNED AND EDITED

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AND GRATEFUL ACKNOWLEDGEMENT IS EXTENDED

TO THOSE IN OTHER DEPARTMENTS

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THE RECREATION STAFF
THE ACADEMIC SCHOOL STAFF
AND ALL OTHERS WHO SPENT
MANY HOURS HELPING SET STANDARDS

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PROGRAM DESCRIPTION

A. General Information:

Funding is provided by a Title I federal grant. As in the Academic School, age limits are set at 6-21, though no students under 16 are admitted. The reason for this is the fact that they (the students) cannot be placed in community jobs until they are 18 and so, any evaluation performed prior to 16 would be outdated by the time they are ready to be placed.

When the program was begun in 1968, only mild and high moderate level students were admitted to the program as they were the ones who were most likely to return to community living. Since that time, the philosophy concerning the lower moderate and high severes has changed and facilities are currently being prepared in a number of communities around the state to provide live-in sheltered workshop situations for this group. As a result, the Pre-Vocational & Evaluation Program now accepts these levels on a selected basis, of those with the greatest potential for community return.

At present there are three evaluator-trainers working directly with the students in the program. As there are normally about 15 students in the A.M. and 15 in the P.M., the daily staff-student ratio is fairly consistent at 1:10. The other members of the staff are a secretary and an evaluator who writes the final assessment reports and administers the psychometric test battery. The staff reports to the director of Vocational Education who is responsible for program supervision.

In addition to the regular state school residents, the program also provides services to day students, vocational rehabilitation clients, and special education students from local independent school districts.

B. Goals and Objectives:

A. To offer a consistent program for assessing a resident's current vocational potential, and to generate predictive evaluations of his future ability in employment.

B. To provide a work setting very much like that of an actual job so residents may experience the required structure of employment.

C. To encourage and train the resident in those social behaviors as are most conducive to a work environment.

D. To promote those aspects of grooming and hygiene which are required in a job setting.

E. To generate a success pattern which leads to motivation and feelings of self worth in the resident.

F. To maintain the evaluation and training process at a "state of the art" level of methods and techniques.

G. To retain campus wide communication with all departments so we may coordinate with their needs and requirements.

H. To aid, through the program, in reducing job failure, which ultimately leads to reassignment and/or retraining.

C. Program Sequence:

Referrals to the program are accepted from Vocational Rehabilitation, the Academic School, the Unit staff, and local I.S.D. special education staff. The evaluator writes up a referral background information sheet (see the end of section IC for a copy of this sheet) on the prospective participant and then, two members of the staff interview the student and any person who has routine contact with him. The student is graded on his functional level as spelled out by specific program entry criteria (see the end of section IC for a copy of these criteria). Following this, a Pre-Vocational staffing is held at which time, it is determined whether it is appropriate at that point to admit him to the program.

Once accepted, the student, upon entering the program is subjected to a series of simple manipulative tests to determine his current level of vocational functioning. These are the Pre-Skill Tests which maybe seen in Section II (Pink). There are 20 of these tests and each emphasizes assessment on a particular important skill which may be required in actual vocation setting (i.e. bimanual dexterity, color discrimination, small hand tool usage, etc.)

Upon completing this phase, he progresses to job sampling/simulated production, which require an integration of a number of individual skills to complete the tasks. (similar to a real work situation.) In both the Pre-Skill testing and job sampling, completion times are monitored and subjective observations are made on his performance. The job samples may be seen in Section III (Green).

Unit work evaluation is the next step; one in which the student is exposed to actual vocational jobs other than assembly type operations. These include busboy-busgirl, grounds maintenance, nursing service, maid service, and custodial. Initial familiarity is established with the task at hand and then the student performs the required operations and is evaluated on his completion of them. Several weeks later, the student is again evaluated on the same unit work and instructed as to aspects which need improvement. Again several weeks later, he is evaluated on the same unit work, thus deriving three measures of his ability in a specific vocational job. Unit work is covered in Section IV (Red).

During the last two weeks of the program, the student is again tested on the Pre-Skill tests to determine his functional level at that point in the program (Post-testing). Additionally, a psychometric test battery is administered to the student and which covers such factors as dexterity, coordination, interest and aptitude. These test scores are used in conjunction with scores from the rest of the program to form an overall measure of abilities in specific areas. The psychometric test scores are also used for feedback purposes to provide a continual monitor on effectiveness of Pre-Skill and job sample administration. Psychometric test information is covered in Section V (Yellow).

The final phase of the program consists of compiling data and writing a formal evaluation report. A staffing is held and pertinent information is recorded according to a specific format (the format and a sample report may be seen at the end of Section IC). Included in the report are such factors as specific measures of vocational skill areas, medical and psychological indicators and recommendations for additional evaluation such as eyes, hearing, PT-OT, or even psychiatric. Finally, the proposed job placement is discussed in terms of the current and future ability and interest of the student. The evaluation is then forwarded to Institutional Student Placement or Vocational Rehabilitation for appropriate job placement.

A follow-up study to determine the accuracy of the predictions is currently in process of being run. Such measures as job success, adaptation to job structure, and the need for retraining/reassignment are under scrutiny. The results of this study should be published in the second edition of this manual.

D. Token Reinforcement Program:

Once a student has progressed into the job sampling phase of the program, a study is made to determine an average number of tasks (job samples) he can complete in each half day period. He is then "contracted" to complete his average number every day. For each job he receives a token which he keeps on his "token string". Additionally, he receives a token for each half hour of good overall behavior.

At the end of each half day period, he "buys" a glass of "kool aid" if he has enough tokens (the number varies between students according to ability and is normally between 7 and 11). He additionally receives a small piece of candy for each job token which is earned over contract minimum. Any token left over after buying the daily coke is held over till the next day but cannot be used in fulfilling his daily contract.

At the end of the week, a special activity such as a trip to the playground, a movie, or a story session is set aside for those who have fulfilled their contracts every day during that week. This activity must be "bought" also and requires that the excess tokens collected during the week be used.

As is with most token economies, this one has undergone considerable change since it was reinstituted about a year ago. This version seems to be working very well though small changes may be required from time to time.

E. Learning:

Studies have been undertaken to determine if the training aspects of the program are really effective. Measures taken on the post test were compared with those of the pre-test and analyzed. It became apparent that differences were significant and the results of the study are displayed graphically in Section VI (Salmon).

F. Validity:

The parameter of validity was established by constructing a glossary of terms which were taken from a pyschological dictionary, a standard dictionary and a medical dictionary. These terms are the criterion measure by which the test skills are validated; the glossary is found in Section VI (Salmon).

The tests were constructed so as to possess a certain face validity and scrutinized for congruence to the criterion glossary. Those tests which did not conform were revised.

In summary, the programs and pre-skills are based on both criterion and face validity. Any change in definition would bring about a reexamination of the task for parallelism to the stated term.

G. Reliability:

Since there is a large learning component in the measurement differences between the pre and post tests, the calculation of reliability in a standard manner is nearly impossible. For this reason, the method of rank order correlation was used to establish reliability in terms of the ability to predict the post test scores from those on the pre test. Correlation was found to be positive in all cases and "t" tests were run for test of significance. The correlational data table may be found in Section VI (Salmon).

REFERRAL INFORMATION FORM

NAME: ______________________ DORM: __________ BIRTHDATE __________ DATE __________

STUDENT REFERRAL STATUS: ____________________ REFERRAL SOURCE ________________

I. MEDICAL DATA:

A) Important Health Problems:

B) Hearing Evaluation: DATE: ______________________

C) Speech Evaluation: DATE: ______________________

D) Vision Evaluation: DATE: ______________________

II. PSYCHOLOGICAL DATA:

A) Latest Testing Information: DATE: ______________________

III. SOCIAL HISTORY:

IV. PHOTOGRAPHIC CLEARANCE:

Yes ____________ No ____________

V. COMMENTS:

PRE-VOCATIONAL PROGRAM ENTRANCE CRITERIA

I. Sensori-Motor:

A. Minimal skill levels in:

1. Discrimination
2. Recognition of differences and similiarities
3. Time and place concepts
4. Tool usage (screwdriver, pliers, wrenches)
5. Identifying color and shapes

B. Perceptual Problems have been defined and documented:

C. Basic mobility must be unilateral at least:

D. Resident must be fitted with glasses and/or hearing aid, if he needs them. This must be established on the basis of testing within one year from date of projected entry to the program:

E. He must have the physical tolerance to remain working 2-3 hours continuously:

II. Self Help Skills:

A. He must be toilet trained and be continent:

B. He must be capable of personal hygiene:

C. He must be capable of maintaining his clothes in an acceptable manner:

III. Communication:

A. He must have the willingness and ability to follow verbal directions and visual demonstration:

B. He must have minimum communication ability, including both expressive and receptive. This may be accomplished verbally or by use of signs.

C. He must have a working knowledge of such abstract concepts as right, left, over, under, beside, etc.

IV. Social Behavior:

A. He must have a basic awareness of safety in everyday life:

B. He must be able to independently travel from the dorm to the center:

C. He must be devoid of extreme overt inappropriate behavior:

D. He needs some ability in housekeeping skills:

E. He must have the concept of respect for other people's property.

F. He must have a frustration tolerance which is adequate for an employment environment:

G. He must be capable of functioning in a well structured job setting:

H. In a general sense, he must vocationally be ready to hold a job:

V. Approval by Staff of Evaluation Program:

PRE-VOCATIONAL EVALUATION CENTER

DENTON STATE SCHOOL

Vocational Capacity Evaluation

Name:	Dorm:
Birthdate:	Date:
Date Entered Program:	Date Left Program:

Referral Source:

General Impression:

Physical Status:

Psychological Status:

Pre-Vocational Findings Based On:

General Behavior and Work Habits:

I. Attitude Towards Work:
  a) Ability to adapt to work environment
  b) Motivation to Work
  c) Work Interest
  d) Attention Span

II. Performance Traits:
  a) Reaction to pressure as it relates to the actual work being performed
  b) Frustration Tolerance
  c) Ability to adjust to new assignment
  d) Reasoning, conceptualization and organizing
  e) Response to instruction
  f) Retention
  g) Reaction to criticism
  h) Work quality and quantity
  i) Consistency of work effort

III. Interpersonal Relations:
  a) Reaction to supervision
  b) Cooperation
  c) Peer relationships

IV. Personality:
  a) Temperament
  b) Behavior problems
  c) Aspirations and goals

Vocational Aptitudes and Skills:

I. Vocational Strengths

II. Adequate Performance

III. Areas of less proficiency

IV. Psychometric testing

V. Academics

VI. Unit Work

- A) Yard Work-Male
- B) Custodial-Male
- C) Bus Boy-Male
- D) Nurse's Aide-Female
- E) Bus Girl-Female
- F) Maid Service-Female

Summary and Recommendations:

PRE-VOCATIONAL EVALUATION CENTER

DENTON STATE SCHOOL

Vocational Capacity Evaluation

Name:
Birthdate: 7-31-40
Date Entered Program: 3-22-71

Dorm: 14
Date: 10-12-71
Date Left Program: 10-8-71

General Impression:

is a thirty-two year old, Caucasian female who has severe spastic quadriplegia. Although largely confined to a wheelchair, the subject can stand and walk to a small extent while leaning on a support and she can also ambulate in the wheelchair by pushing with her feet. Word knowledge is good, but much concentrated effort is necessary on both part and that of the listener's for the conversation to be understood. Both salivation control and speech are difficult due to the spasticity involved. seems to be a sensitive individual who is trying hard to be "normal". She does not identify herself with the other residents at the State School and, as often as possible, prefers the conversation and company of the staff, especially male staff members. The subject can usually be conversed with and approached on an adult level which she definitely prefers. There are times when appears to drift into a fantasy world by saying her name is really "Nancy" and she has a special religious mission on earth, but yet she does appear capable of separating the real world from fantasy.

Physical:

severe spastic quadriplegia will greatly restrict job training and placement.

Psychological:

2-11-70 WAIS. VIQ = 77. The Psychological Summary of 2-11-70 stated; "It is my impression that this young woman is presently having difficulty coping with her frustration and anxiety that are a result of being surrounded by people she describes as "mentally retarded" and the resulting social environment that is of necessity created by them and for them. Her present sexual frustration is, of necessity, part of this environment. At this time it is felt that her sexual frustrations and religious preoccupation are not of psychotic proportions".

Pre-Vocational Findings Based On:

- Pre-Skill Exercise Program
- Simulated Production and Job Sampling Activities
  - Seven-Wire Mat Production
  - Button Discrimination
  - Pattern Duplication
  - Tek Fastener Disassembly
- Psychometric Testing
  - Wells Concrete Directions
  - Chronological Filing
  - Alphabetical Filing
  - Number, Time and Money Exercise
  - Posting Exercise
  - Vocational Picture Interest Inventory

General Behavior and Work Habits:

I. Attitude Towards Work

A) Ability to adapt to work environment-Overall adequate, except for her tendency to seek interaction with staff members sometimes can be a problem.

B) Motivation to work-Highest on "real" work assignments. Dislikes tasks which are designed to simply pass the time. Motivation is seemingly based in part on her concept of being independent and having a worthwhile job like other "normal" people.

C) Work Interest-Greatest on "real" work, however her desire to interact sometimes interferes with actual work interest.

D) Attention Span (Alertness)-Good. She has a great deal of perseverance even in the face of obstacles.

II. Performance Traits

A) Reaction to pressure as it relates to the actual work being performed-Generally, is motivated to do her best and seldom is outside pressure required. If too much pressure or demand for speed is applied, her lack of coordination seems to intensify.

B) Frustration tolerance-Determination and frustration tolerance good. She will state her dislike in regard to performing certain assignments, but only after she has attempted them several times and been unsuccessful in their completion.

C) Ability to adjust to new assignments-No problems, will try any task one or more times, especially one which is new to her.

D) Reasoning, conceptualization and organizational facilities-All basically good: however, sometimes they suffer, especially organizational capabilities, as has to devote so much concentration on controlling her uncoordinated body movement just to carry out the assignment.

E) Response to instruction-Good. Can usually follow instructions involving more than two steps.

F) Retention-Adequate.

G) Reaction to criticism-Occasionally takes as personal insult and broods over the correction for a period of time.

H) Basically understands the concepts of quality and quantity, but both are hindered by uncoordinated movements of limbs.

I) Consistency of work effort-Works at own pace which is slow. Perseverance is steady.

III. Interpersonal Relations

A) Reaction to supervision-Enjoys interaction with the staff, especially male members. She can become somewhat demanding in her quest for conversation and counselling concerning emotional problems. Does not necessarily need constant supervision as she is a reliable and responsible worker.

B) Cooperation-Overall good, except for her constant interaction-seeking behavior.

C) Peer relationships-Almost non-existent. Does not classify herself with her peers.

IV. Personality

A) Temperament-Somewhat unstable. Can vascillate between depression and unexplainable giggling. Towards the end of the class period appears fatigued by her efforts.

B) Behavior problems-Can become persistent in desiring counselling. also has personal hygiene problems. (Dorm has been contacted concerning the hygiene problem.)

C) Aspirations and goals-Wants to be self-supporting. feels because she can feed and dress herself in addition to making her bed that she should be permitted to live independently outside the institution.

Vocational Aptitudes and Skills:

I. Vocational Strengths-The subject has the basic comprehension capabilities to perform the following, but her spasticity often makes the physically carrying out of these abilities difficult.

A) Discrimination Skills-Color, Letter, Size and Shape Differentiation.

B) Ability to Follow Visual Directions and Duplicate Simple Schematic Patterns.

II. Areas of Less Proficiency-Although spasticity is always present, the severity does vary from day to day with its being most extreme when the subject is excited or upset.

A) coordination skills are best conveyed in comparitive terms. The subject's spasticity affects all her movements in differing degrees. Gross Motor Executions, which include Range of Motion, Arm-Hand Coordination and Grasping, are performed optimally but even assignments necessitating these skills require concentration and result in production far Below Average as compared to Sheltered Workshop Workers. Small Assembly, including Eye-Hand Coordination, Finger Dexterity and Aiming or Alignment is the weakest with Bi-Manual Dexterity and Tool Usage being especially confined. Often, while performing small assembly tasks, her acute spasticity will cause part of the completed portion of the assembly to come apart before she completes the task.

III. Psychometric Testing

A) Wells Concrete Directions Test-Indicates a good ability for following one and two step directions.

B) Vocational Picture Interest Inventory-High inventoried interest in Nursing Service, and Average in Storeroom-Messenger and Food Service.

IV. Academic

A) Handwriting varies, but even at its best it is hard to decipher.

B) Able to carry out simple, one column adding and subtracting and tell time in the hour and half hour with consistent accuracy. Did not know multiplication, division or coin identification. can read to some extent but the print has to be fairly large for her to see it without difficulty.

Summary and Recommendations:

arm-hand coordination and grasping techniques have been refined to some extent since enrollment in the Pre-Vocational Center. Overall work habits have improved, largely in reference to a decreased number of attempts at interaction and fewer demands for special treatment. seems to have gained a certain amount of independence and realization that she can do many things on her own.

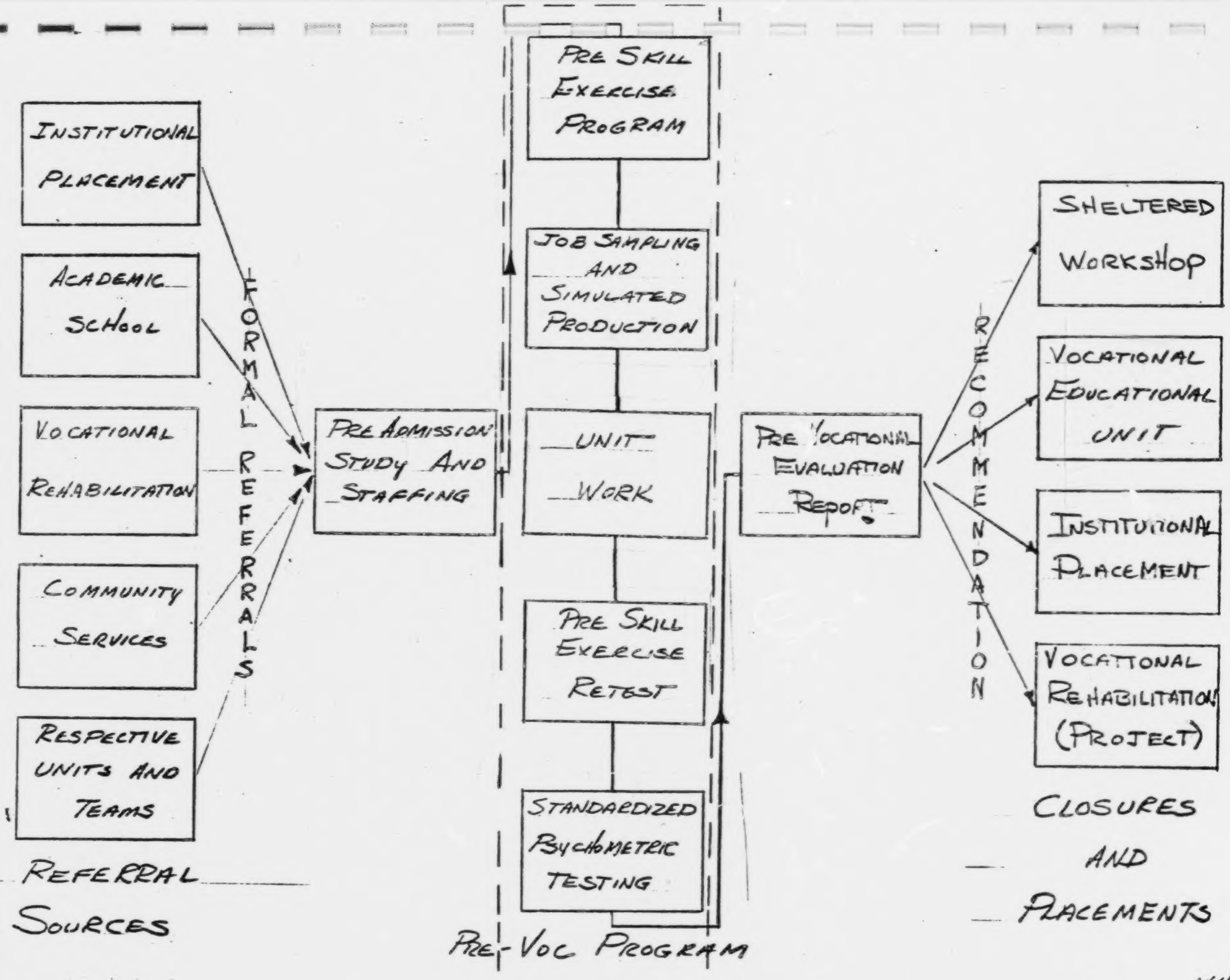
The subject's vocational strengths are her intelligence, determination and perseverance, desire to work, frustration tolerance and attention span. also demonstrates a degree of ego involvement and caring about her work. She has the need to feel that her task is worthwhile and not just "busy" work.

greatest liability is her spasticity which can fluctuate in severity. The subject seems to have a self-perceived need for counselling and will become quite persistent in seeking interaction. Once guidelines are set about this matter and anyother problem, will conform. Although she has the necessary word knowledge for communication, her spasticity makes speech difficult. The only other problem lies in the area of personal hygiene.

The Pre-Vocational Center recommends placement in the Sheltered Workshop. Due to her spasticity and wheelchair confinement, certain special fixtures maybe required for her to perform some of the jobs. Assignments calling for gross coordination skills are easiest for this student, though even when performing these, production will be limited. needs to feel she is truly participating in a work situation and any increased responsibilities, including jobs or activities on the dorm, would be beneficial to her.

Pat Mc Cleneghan
Pat McCleneghan, Evaluator

Bill Farrar
Bill Farrar, Director


INSTITUTIONAL PLACEMENT
ACADEMIC SCHOOL
VOCATIONAL REHABILITATION
COMMUNITY SERVICES
RESPECTIVE UNITS AND TEAMS
REFERRAL SOURCES
FORMAL REFERRALS
PRE ADMISSION STUDY AND STAFFING
PRE SKILL EXERCISE PROGRAM
JOB SAMPLING AND SIMULATED PRODUCTION
UNIT WORK
PRE SKILL EXERCISE RETEST
STANDARDIZED PSYCHOMETRIC TESTING
PRE-VOC PROGRAM
PRE VOCATIONAL EVALUATION REPORT
RECOMMENDATION
SHELTERED WORKSHOP
VOCATIONAL EDUCATIONAL UNIT
INSTITUTIONAL PLACEMENT
VOCATIONAL REHABILITATION (PROJECT)
CLOSURES AND PLACEMENTS

WHF

WEEK	PRE-SKILL	MAT	SORT	WORK SAMP.	UNIT EVAL	UNIT TRN.	PWR BLOCK	UNIT TRN. EVAL	ASSY LINE	UNIT RE-TRN.	UNIT RE-EVAL	DIS.	RE TEST	PSY.
1	▨													
2		▨	▨											
3				▨										
4				▨	▨									
5						▨	▨							
6		▨		▨										
7				▨		▨								
8			▨				▨							
9				▨				▨						
10			▨	▨										
11									▨	▨				
12				▨							▨			
13												▨		
14				▨			▨							
15													▨	
16														▨

PROGRAM FLOW CHART

FLOW CHART LEGEND

1 PRE-SKILL = INDIVIDUAL SKILL TESTS
2 MAT = FOOT MAT ASSEMBLY
3 SORT = BUTTON SORTING
4 WORK SAMP. = SAMPLE OF ACTUAL TASK
5 UNIT EVAL. = INITIAL VOCATIONAL EVALUATION
6 UNIT TRN. = VOCATIONAL TRAINING
7 PWR. BLK = INTEGRATED TOOL USAGE
8 UNIT TRN. EVAL = VOCATIONAL TRAINING EVALUATION
9 ASSY. LINE = ASSEMBLY LINE OPERATION
10 UNIT RE-TRN. = VOCATIONAL RE-TRAINING
11 UNIT RE-EVAL. = VOCATIONAL RE-EVALUATION
12 DIS. = DISASSEMBLY OF WORK SAMPLES
13 RETEST = RE ADMINISTRATION OF PRESKILLS
14 PSY. = PSYCHOMETRIC TESTING

Section II - Pre-Skills:

The Pre-Skill tests are administered in a 1 to 1 situation in an area set aside for that purpose at the front of the room. Testing takes place at a 3' x 8' x 28" collapsible table with accompanying fiberglass contoured chairs. All test items are stored on open shelves located directly behind the test administrator and two students are the maximum which can be effectively tested at any one time.

Completion times are monitored by means of a standard stop watch and are recorded (in minutes and seconds) on the Pre-Skill Evaluation Sheet in column E.T. A sample of this form maybe found at the end of this section. The figures in the E.T. column are converted into seconds (via a minutes to seconds conversion table which may also be found at the end of this section).

Competitive and sheltered workshop standards are provided with each pre-skill with the exception of a few, for which data is still incomplete. It is hoped that those missing will be completed in time for the second edition of the manual.

The percentage of competitive standard is found by taking the students' converted score (to seconds) and finding the corresponding percentage (or closest to it) in the column immediately to the right of the seconds figure.

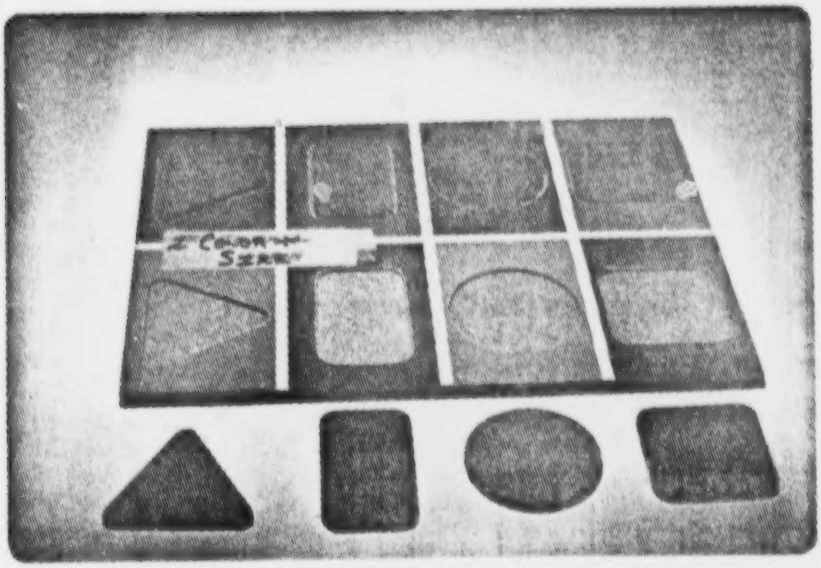
The competitive standards figure represents a percentage of the mean completion time (for that test) of a randomly selected norm group comprised of D.S.S. staff members. This group is represented by a broad age span (17-56), on equally diverse educational attainment (second grade completion to a M.D.), and the groups in most cases are half males and half females.

Since the student applying for a trainee level job in the community would normally be competing with members of such a diverse group, it is believed that this is a fairly representative norm group. (Also, he would probably be competing against "normal" applicants also). In addition, this norm group is readily accessible.

The student's peer group or sheltered workshop standard is found by reading the rating on the appropriate standards sheet which denotes the number of seconds required which denotes a student as above average, average, or below average. The group into which he falls is his rank relative to those whom he works with. The mean, median, and the mode is also included for easy reference.

The norm group represented by the sheltered workshop standard is a random sample of all those students who have attended the center in the last two years. Every third student was selected from a list of completed evaluations and an average of his first and last attempt at task completion is used. Roughly half are males and half are females in all cases.

#1 - COLOR AND SIZE



1. Purpose: To evaluate color discrimination and shape perception.

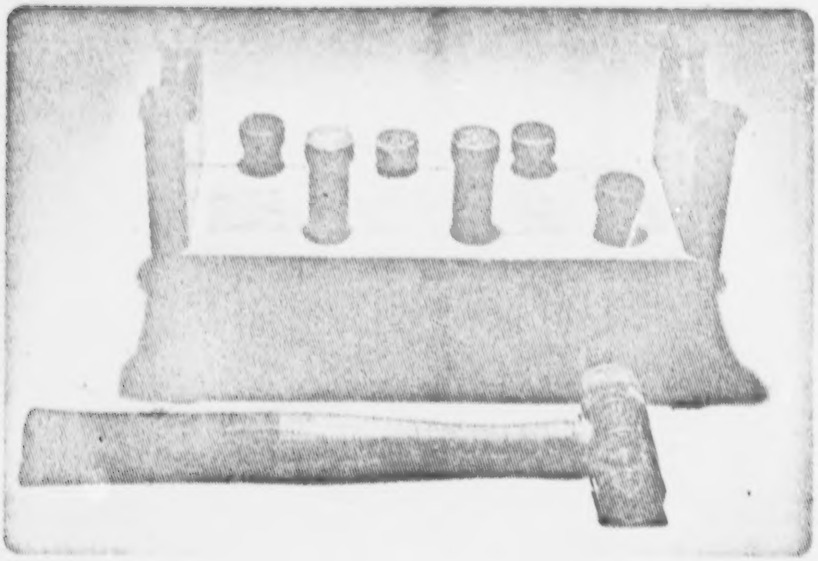
2. Materials:
   a) Standardized board approximately 10" x 12" with eight sections as follows: 2 squares of purple and orange, 2 circles of yellow and brown, 2 rectangles of red and green, and 2 triangles of grey and blue.

3. Instructions:
   Demonstrate the exercise by removing all the pieces, calling the shape and color and placing each in the correct position. Instruct the subject to pick up one piece at a time, place in the appropriate depression, and continue in this manner until all pieces are inserted on the board.

4. Major Evaluation Items:
   a) Color Discrimination
      1. Note colors involved in any problems.
   b) Shape Perception

5. Time Standard:
   Not timed.

#2 - POUNDING BENCH X



1. Purpose: To determine predominant hand usage and evaluate ability to strike objects using a hammer as an extension of the hand.

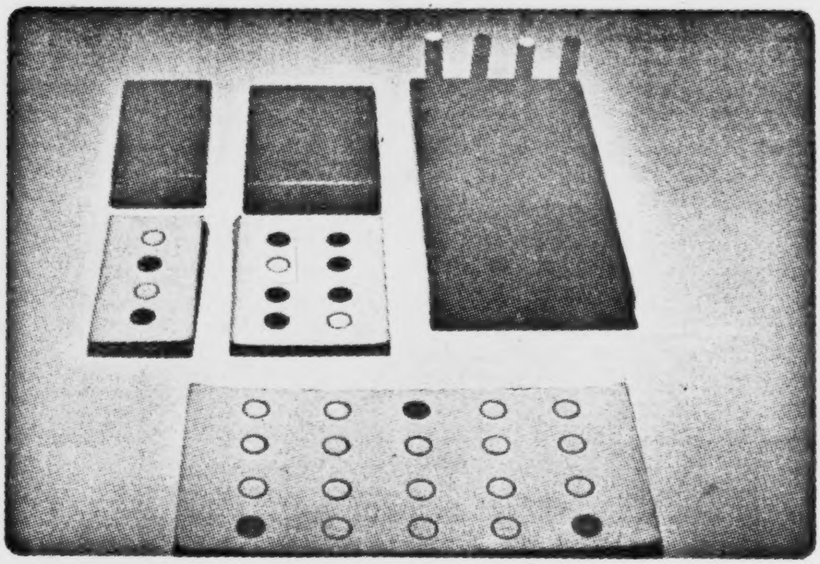
2. Materials:
   a) One ordinary child's toy pounding bench consisting of six pegs in a wooden frame which has a bolt adjustment to determine the desired amount of pressure needed to drive the pegs down.
   b) One plastic tipped bench hammer.

3. Instructions:
   Demonstrate to the student how the pegs are driven down. Then lay the hammer on the table. The subject should be instructed to pick up the hammer with the dominant hand, hold the bench steady with one hand, and strike the pegs with the hammer until all the pegs are driven down flush with the bench.

4. Major Evaluation Items:
   a) Predominant hand (note).__________
   b) Ability to strike objects using a hammer.
      1. Aiming
      2. Sufficient force used to drive the pegs down
      3. Holding hammer at end of hammer handle or "choking up"

5. Time Standard:
   Not timed.

#3 - PATTERN DUPLICATION *



1. Purpose: To evaluate ability to duplicate two dimensional patterns with three dimensional materials.

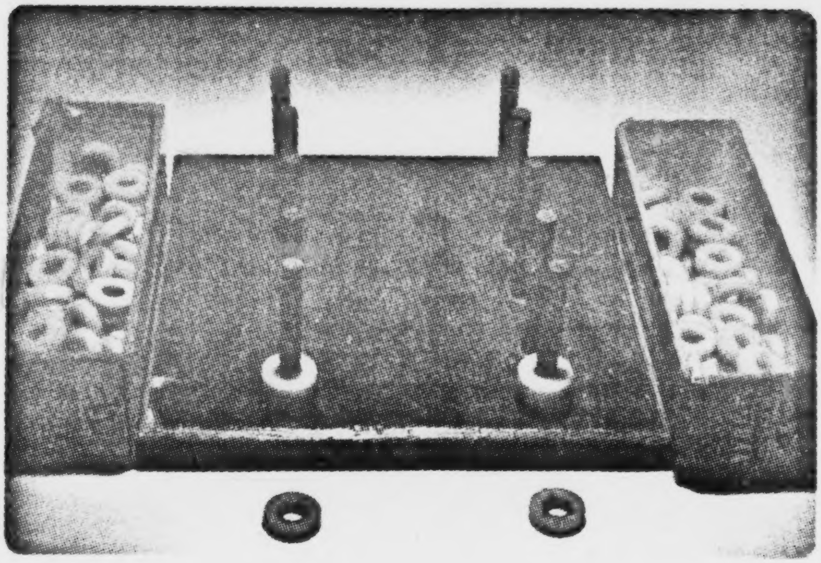
2. Materials:
   a) 1 block 11/16" x 2" x 4" with 1 row of 4 holes (13/32" holes common to all 3 blocks)
   b) 1 block 11/16" x 2-11/16" x 4" with 2 rows of 4 holes each.
   c) 1 block 11/16" x 4" x 8" with 4 rows of 5 holes each.
   d) 4 cards for each block with the holes represented by drawn circles. The circles will be colored orange, blue, green or white.
   e) Enough dowel pins 3/8" x 1-7/8" to duplicate any of the patterns. The color of these pins should correspond with the color of the patterns.

3. Instructions:
   With the dowel pins mixed together in the storage box, begin with the one row block and the simplest pattern (#1). Demonstrate to the subject that the colored pattern represents the colored dowel pins. The subject will then practice placing the correct dowels in the holes. After all the one row designs have been completed, the subject shall then proceed on the more difficult blocks and perform on them in the same manner.

4. Major Evaluation Items:
   a) Pattern Reversals
   b) Discrimination Between Colors
   c) Incorrect Patterns

5. Time Standard:
   Not timed.

#4 - RING AND PEG



1. Purpose: To evaluate and teach bi-manual dexterity skill.

2. Materials:
   a) A 3/4" plywood base which is 10" wide and 12" long.
   b) Two rows of dowel pins 7/16" x 3" (exposed height) spaced 1-5/8" apart.
   c) 120 plastic washers with a 1" diameter, 1/4" thick with a 15/32" hole in the center.

3. Instructions:
   The rings should be divided equally between the two boxes which are placed on each side of the board. It (the board) should be aligned to allow the subject to look straight forward through the two rows of pins. The subject should be instructed to take a ring in the right and left hand from each of the boxes. Place them on the two rear pins at the same time. Repeat this operation until the back two pins are full and then proceed to the next closer and continue until all pins are filled. Be sure to correct any incorrect performance on the task.

4. Major Evaluation Items:
   a) Bi-manual usage (washers are placed coordinately)
   b) Washers placed on pins at the same level
   c) Ability to manipulate washer for placement on the pegs

5. Time Standard:
   a) Competitive-Refer to appropriate standards section
   b) Sheltered Workshop-Refer to appropriate standards section

RING AND PEG COMPETITIVE NORM TABLE

SEC.	% COMP. $\bar{X}$	SEC.	% COMP. $\bar{X}$	SEC.	% COMP. $\bar{X}$	SEC.	% COMP. $\bar{X}$
123	100	185	75	246	50	492	25
125	99	187	74	254	49	541	24
128	98	189	73	264	48	590	23
130	97	192	72	275	47	639	22
133	96	194	71	285	46	689	21
135	95	197	70	295	45	738	20
137	94	199	69	306	44	787	19
140	93	202	68	316	43	836	18
142	92	204	67	325	42	886	17
145	91	207	66	335	41	935	16
147	90	209	65	344	40	984	15
150	89	211	64	354	39	1033	14
153	88	214	63	364	38	1083	13
155	87	216	62	374	37	1132	12
158	86	219	61	384	36	1181	11
160	85	221	60	394	35	1230	10
162	84	224	59	404	34	1476	9
165	83	227	58	414	33	1722	8
167	82	229	57	423	32	1968	7
170	81	232	56	433	31	2214	6
172	80	234	55	442	30	2460	5
175	79	236	54	452	29	3074	4
178	78	239	53	462	28	5000	3
180	77	241	52	472	27	6150	2
183	76	244	51	482	26	12300	1

RING AND PEG SHELTERED WORKSHOP STANDARD

SCORES (SEC.)	f
100 - 134	5
135 - 169	7
170 - 204	6
205 - 239	15
240 - 274	5
275 - 309	8
310 - 344	2
345 - 379	0
380 - 414	0
415 - 449	1
450 - 484	0
485 - 519	0
520 - 554	0
555 - 589	0
590 - 624	1
	N = 50

N 25 = 12.5 (13)

Q_1 = 275 - 1/5 (35)
= 275 - 7
= 268

Q_3 = 170

N 75 = 3 (12.5) = 37.5 (38)

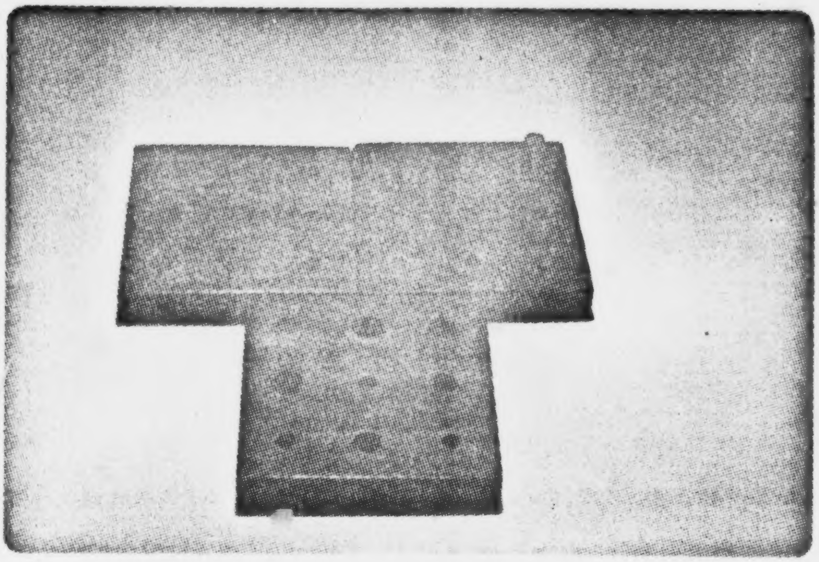
Q_2 = 240 - 8/15 (135)
= 240 - 72
= 168"

SCORING (SEC.)

Above Average = 0-169
Average = 170-267
Below Average = 268+

$\overline{X}$ = 229 sec.
Median = 228 sec.
Mode = 223 sec.

#5 - SIZED DOWEL *



1. Purpose: To evaluate and teach size by sequence perceptual skill.

2. Materials:
   a) Three blocks of wood 4" wide x 4" long and 11/16" thick. Nine holes should be drilled in each to hold pegs which range in sizes of 1/4", 5/16", 7/8", and 1/2".
   b) Enough dowel pins are needed in the above sizes to fill all of the holes plus a few extras. Each pin is 1" long.

3. Instructions:
   Instruct the subject to take the largest pegs in the storage box and place them in the appropriate holes in the blocks, filling all holes of that size and then progressing to the next smaller size holes and filling them, etc. Be sure to point out to the subject that a small pin in a larger hole will not be allowed and demonstrate what is meant. During practice be sure to help subject correct any wrong placements he may have made.

4. Major Evaluation Items:
   a) The largest pegs are placed first
   b) All of one size pegs are inserted before progressing to the next size
   c) All three blocks are filled in the correct sequence
   d) Aiming
   e) Manipulation of pegs for insertion

5. Time Standard:
   a) Competitive-Refer to appropriate standards section
   b) Sheltered Workshop-Refer to appropriate standards section

SIZED DOWEL COMPETITIVE NORM TABLE

SEC.	% COMP. $\bar{X}$	SEC.	% COMP. $\bar{X}$	SEC.	% COMP. $\bar{X}$	SEC.	% COMP. $\bar{X}$
64	100	96	75	128	50	256	25
65	99	97	74	133	49	269	24
66	98	99	73	139	48	282	23
68	97	100	72	144	47	295	22
69	96	101	71	149	46	307	21
70	95	102	70	154	45	320	20
71	94	103	69	159	44	352	19
73	93	105	68	164	43	384	18
74	92	107	67	169	42	416	17
76	91	108	66	174	41	448	16
77	90	109	65	179	40	480	15
78	89	110	64	184	39	512	14
80	88	112	63	190	38	544	13
82	87	113	62	195	37	576	12
83	86	114	61	200	36	608	11
84	85	115	60	205	35	640	10
85	84	116	59	210	34	768	9
86	83	118	58	215	33	896	8
88	82	119	57	220	32	1024	7
89	81	120	56	225	31	1152	6
90	80	121	55	230	30	1280	5
91	79	122	54	235	29	1600	4
92	78	124	53	241	28	2131	3
94	77	125	52	246	27	3200	2
95	76	126	51	251	26	6400	1

SIZED DOWEL SHELTERED WORKSHOP STANDARD

SCORES (SEC.)	f
50 - 74	4
75 - 99	3
100 - 124	8
125 - 149	13
150 - 174	3
175 - 199	5
200 - 224	4
225 - 249	4
250 - 274	1
275 - 299	0
300 - 324	2
325 - 349	2
350 - 374	0
375 - 399	0
400 - 424	0
425 - 449	0
450 - 474	1
	N = 50

N 25 = 12.5

Q_1 = 225 - 3/4 (25)
= 225 - 18.74
= 206

N 75 = 3 (12.5) = 37.5 (38)

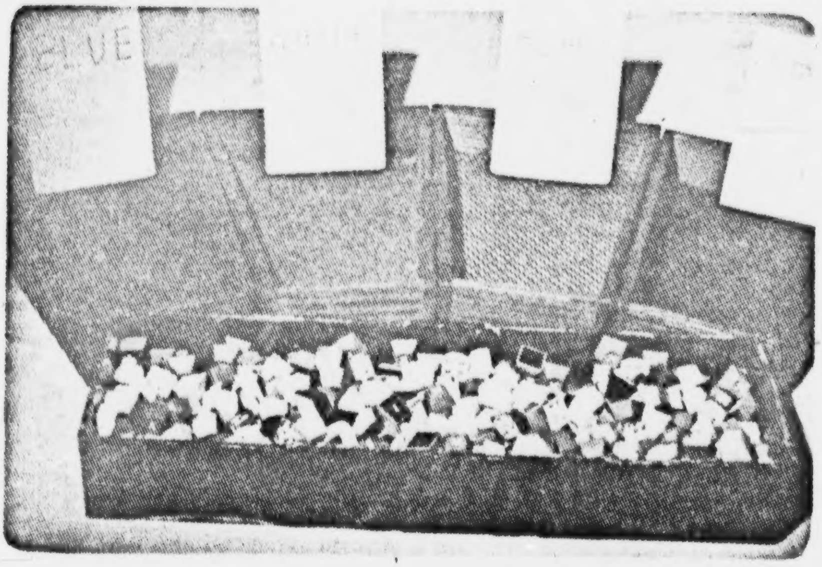
Q_3 = 125 - 3/8 (25)
= 125 - 9.37
= 116

SCORING (SEC.)

Above Average = 0 - 115
Average = 116 - 205
Below Average = 206+

$\overline{X}$ = 167
Median = 144
Mode = 138

SORTING #1



1. Purpose:
   To evaluate the separation of objects by differences in their color.

2. Materials:
   a) A sorting jig comprised of a sorting frame, a supply box, and four sort boxes. (see picture).
   b) Colored typewriter or adding machine keys in colors and quantity as follows: (1) 28 black keys, (2) 29 grey keys, (3) 142 white keys and 300 blue keys.

3. Instructions:
   This task is begun with the keys placed in the supply box as shown. One (1) different color button is placed in each of the boxes. The student is instructed to take a handful of buttons in his non-dominant hand and with his dominant hand picks each button up from the hand-held pile and throws them in each of the boxes according to color. He progresses in the same manner until he has separated all of the buttons in the supply box.

4. Major Evaluation Items:
   a) Large scale errors between two specific colors.
   b) All color discrimination problems.

5. Time Standard:
   a) Competitive-Refer to appropriate standards section.
   b) Sheltered Workshop-Refer to appropriate standards section.

SORT #1 COMPETITIVE NORM TABLE

SEC.	% COMP. $\bar{X}$	SEC.	% COMP. $\bar{X}$	SEC.	% COMP. $\bar{X}$	SEC.	% COMP $\bar{X}$
342	100	513	75	684	50	1368	25
349	99	520	74	711	49	1436	24
356	98	527	73	739	48	1505	23
362	97	533	72	766	47	1573	22
369	96	540	71	794	46	1642	21
376	95	547	70	821	45	1710	20
383	94	554	69	848	44	1881	19
390	93	561	68	876	43	2052	18
396	92	567	67	903	42	2223	17
403	91	574	66	931	41	2394	16
410	90	581	65	958	40	2565	15
417	89	588	64	985	39	2736	14
424	88	595	63	1012	38	2907	13
430	87	601	62	1040	37	3078	12
437	86	609	61	1067	36	3249	11
444	85	615	60	1094	35	3420	10
453	84	622	59	1121	34	4104	9
461	83	629	58	1149	33	4788	8
470	82	635	57	1176	32	5472	7
478	81	642	56	1204	31	6156	6
487	80	649	55	1231	30	6840	5
492	79	656	54	1258	29	8550	4
497	78	663	53	1286	28	11389	3
503	77	670	52	1313	27	17100	2
508	76	677	51	1341	26	34200	1

SORT #1 SHELTERED WORKSHOP STANDARD

SCORES (SEC.)	f
390 - 549	4
550 - 709	9
710 - 869	7
870 - 1029	8
1030 - 1189	5
1190 - 1349	3
1350 - 1509	3
1510 - 1669	4
1670 - 1829	3
1830 - 1989	2
1990 - 2149	0
2150 - 2309	0
2310 - 2469	0
2470 - 2629	0
2630 - 2790	1
	N = 49

N 25 = 12.25

N 75 = 3 (12.25) = 36.75 (37)

Q_1 = 1517 - 2/3 (160)
= 1517 - 107
= 1410

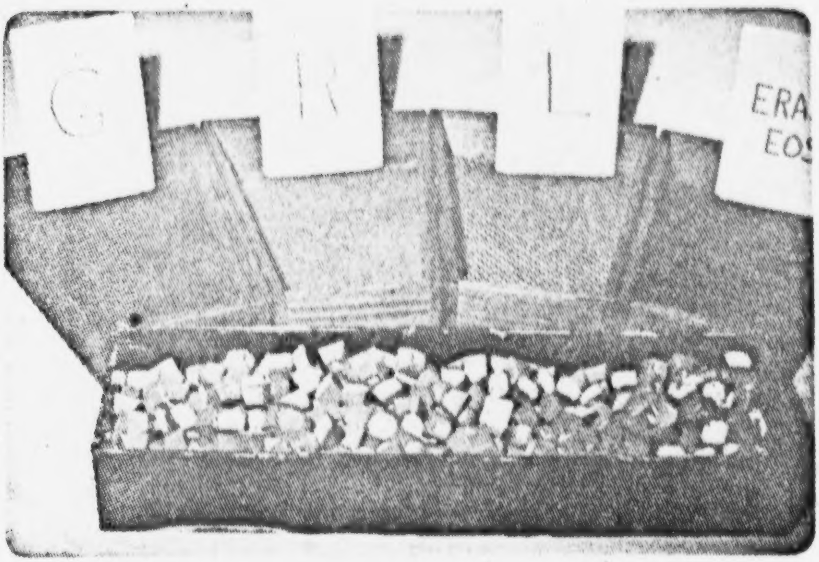
Q_3 = 712 - 1/9 (160)
= 712 - 18
= 694

SCORING (SEC.)

Above Average = 0 - 693
Average = 694 - 1409
Below Average = 1410+

$\overline{X}$ = 1071
Median = 959
Mode = 631

SORTING #2



1. Purpose:
   To evaluate the separation of objects by differences in figures imprinted on them.

2. Materials:
   a) A sorting jig comprised of a sorting frame, a supply box, and four sort boxes. (See picture).
   b) Typewriter or adding machine keys with different figures on them and in quantities: (1) 72 "R" keys, (2) 149 "L" keys, (3) 32 "G" keys, (4) 196 "ERASE-EOS" keys.

3. Instructions:
   This task is begun with the keys in the supply box as shown. One different figured key is placed in each of the sort boxes. The student is instructed to take a handful of buttons in his non-dominant hand, pick each button out of the hand-held pile with his dominant hand, and "throw" each in a sort box according to its figure. He progresses in the same manner until he has separated all of the buttons in the supply box.

4. Major Evaluation Items:
   a) Large scale errors between specific figured buttons.
   b) All figure discrimination problems.
   c) Drawing buttons close to face.

5. Time Standard:
   a) Competitive-Refer to appropriate standards section.
   b) Sheltered Workshop-Refer to appropriate standards section.

SORT #2 COMPETITIVE NORM TABLE

SEC.	% COMP. $\bar{X}$	SEC.	% COMP. $\bar{X}$	SEC.	% COMP. $\bar{X}$	SEC.	% COMP. $\bar{X}$
606	100	909	75	1212	50	2424	25
618	99	921	74	1260	49	2545	24
630	98	933	73	1309	48	2666	23
643	97	946	72	1357	47	2788	22
655	96	958	71	1406	46	2909	21
667	95	970	70	1454	45	3030	20
679	94	982	69	1503	44	3333	19
691	93	994	68	1551	43	3636	18
703	92	1006	67	1600	42	3939	17
715	91	1018	66	1648	41	4242	16
727	90	1030	65	1697	40	4545	15
739	89	1042	64	1745	39	4848	14
751	88	1054	63	1794	38	5151	13
764	87	1067	62	1842	37	5454	12
776	86	1079	61	1891	36	5757	11
788	85	1091	60	1939	35	6060	10
800	84	1103	59	1988	34	7272	9
812	83	1115	58	2036	33	8484	8
824	82	1127	57	2085	32	9696	7
836	81	1139	56	2133	31	10908	6
848	80	1151	55	2182	30	12120	5
860	79	1163	54	2230	29	15150	4
872	78	1175	53	2279	28	20180	3
885	77	1188	52	2327	27	30300	2
897	76	1200	51	2376	26	60600	1

SORT #2 SHELTERED WORKSHOP STANDARD

SCORES (SEC.)	f
700 - 884	2
885 - 1069	7
1070 - 1254	7
1255 - 1439	7
1440 - 1624	8
1625 - 1809	5
1810 - 1994	6
1995 - 2179	1
2180 - 2364	3
2365 - 2549	1
2550 - 2734	0
2735 - 2919	0
2920 - 3104	2
3105 - 3289	0
3290 - 3474	1

N = 50

N25 = 12.5 (13)

N75 = 3 (12.5) = 37.5 (38)

Q_1 = 1995 - 1/6 (185)
= 1995 - 30.5
= 1965

Q_2 = 1625 - 3/4 (185)
= 1625 - 138.75
= 1486

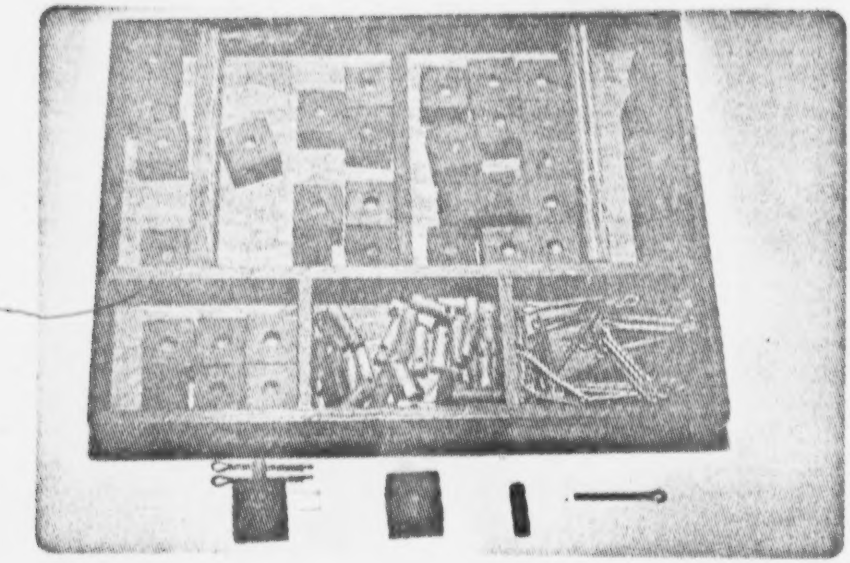
Q_3 = 1255 - 4/7 (185)
= 1255 - 105.71
= 1149

$\overline{X}$ = 1585
Median = 1486
Mode = 1533

SCORING (SEC.)

Above Average = 0 - 1148
Average = 1149 - 1964
Below Average = 1965+

#8 PIN-PEG-BLOCK



1. Purpose: To evaluate and teach repetitious small assembly, eye-hand coordination, and aiming.

2. Materials:
   a) One partitioned tray.
   b) 38 wooden blocks 1" x 1" x 3/4" high with a hole drilled to 11/32" in the top of the block.
   c) 38 or more 5/16" dowel pins 1" long drilled with a 1/8" hole at about 1/4 from one end of the pin.
   d) 38 or more 1/8" or 2" cotter pins.

3. Instructions:
   This task is begun with the units dis-assembled. The tray should be positioned before the subject with the blocks of wood in the upper bin. The cotter pins are to be placed in the lower bins on either the left or the right depending on which the subject favors. The dowel pegs are to be placed in the center small bin. The subject should be instructed to pick up a peg from the center bin. He should then be told to place a cotter pin in the hole in the peg, insert the peg in the top of a block, set the block aside, and begin the next unit. While the student is practicing, call attention to any errors he may make and see that he corrects them before continuing.

4. Major Evaluation Items:
   a) Aiming (cotter pin to peg hole)
   b) Aiming (peg to block)
   c) Hand-eye coordination

5. Time Standard:
   a) Competitive-Refer to appropriate standards section
   b) Sheltered Workshop-Refer to appropriate standards section

PIN, PEG, BLOCK COMPETITIVE NORM TABLE

SEC	% COMP. $\bar{X}$	SEC	% COMP. $\bar{X}$	SEC	% COMP. $\bar{X}$	SEC	% COMP. $\bar{X}$
218	100	327	75	436	50	872	25
222	99	331	74	453	49	916	24
227	98	336	73	471	48	959	23
231	97	340	72	488	47	1003	22
235	96	344	71	506	46	1046	21
240	95	349	70	523	45	1090	20
244	94	353	69	541	44	1199	19
249	93	358	68	558	43	1308	18
253	92	362	67	576	42	1417	17
257	91	366	66	593	41	1526	16
262	90	371	65	610	40	1635	15
266	89	375	64	628	39	1744	14
270	88	379	63	645	38	1853	13
275	87	384	62	663	37	1962	12
279	86	388	61	680	36	2071	11
283	85	392	60	698	35	2180	10
288	84	397	59	715	34	2616	9
292	83	401	58	732	33	3052	8
296	82	405	57	750	32	3488	7
301	81	410	56	767	31	3924	6
305	80	414	55	785	30	4360	5
310	79	419	54	802	29	5450	4
314	78	423	53	820	28	7259	3
318	77	427	52	837	27	10900	2
323	76	432	51	855	26	21800	1

PIN PEG BLOCK SHELTERED WORKSHOP STANDARD

SCORES (SEC.)	f
250 - 314	3
315 - 379	7
380 - 444	4
445 - 509	3
510 - 574	7
575 - 639	2
640 - 704	5
705 - 769	0
770 - 834	5
835 - 899	1
900 - 964	6
965 - 1029	1
1030 - 1094	2
1095 - 1159	3
1160 - 1224	1

N = 50

N 25 = 12.5

N 75 = 3 (12.5) = 37.5 (38)

Q1 = 900

Q2 = 640 - 1/2 (65)
= 640 - 32.5
= 608

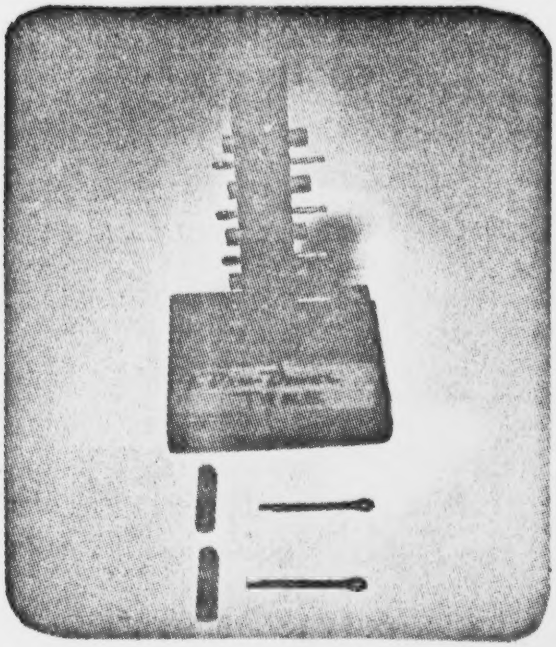
Q3 = 445 - 2/4 (65)
= 445 - 32.5
= 413

SCORING (SEC.)

Above Average = 0 - 412
Average = 413 - 899
Below Average = 900+

$\overline{X}$ = 660
Median = 608
Mode = 348, 543 (Bimodal)

#9 COTTER PIN-DOWEL SEQUENCE



1. Purpose: To evaluate and teach ability to align complex parts.

2. Materials:
   a) A 1" x 6-1/4" dowel mounted on a 4" x 4" base. The large dowel should be drilled through at right angles 1/2" apart. These holes should be drilled through at right angles to receive a 1/8" cotter pin.

   b) 11 dowel pegs 5/16" x 1-1/2" long with a 1/8" hole in center.
   c) 11 cotter pins 1/8" x 2" long.

3. Instructions:
   This exercise should begin disassembled. The subject is instructed to grasp the small dowel rod and insert it into the top hole of the large dowel. The large dowel is then rotated 90 degrees at which point the hole in its center is aligned with the corresponding hole in the large dowel rod. Next, a cotter pin is inserted through both holes, securing the small dowel. The subject proceeds in this manner until all of the small dowels and cotter pins are in place. Care must be taken to correct any mistakes during the practice period.

4. Major Evaluation Items:
   a) Ability to line up holes
   b) Hand-eye coordination.
   c) Aiming (small dowel to large dowel)
   d) Aiming (cotter pin to aligned holes)

5. Time Standard:
   a) Competitive-Refer to appropriate standards section
   b) Sheltered Workshop-Refer to appropriate standards section

COTTER PIN DOWEL SEQUENCE COMPETITIVE NORM TABLE

SEC	% COMP. $\bar{X}$	SEC	% COMP. $\bar{X}$	SEC	% COMP. $\bar{X}$	SEC	% COMP. $\bar{X}$
71	100	107	75	142	50	284	25
72	99	108	74	148	49	298	24
74	98	109	73	153	48	312	23
75	97	111	72	159	47	327	22
77	96	112	71	165	46	341	21
78	95	114	70	170	45	355	20
80	94	115	69	176	44	391	19
81	93	116	68	182	43	426	18
82	92	118	67	187	42	462	17
84	91	119	66	193	41	497	16
85	90	121	65	199	40	533	15
87	89	122	64	204	39	568	14
88	88	124	63	210	38	604	13
89	87	125	62	216	37	639	12
91	86	126	61	222	36	675	11
92	85	128	60	227	35	710	10
94	84	129	59	233	34	852	9
95	83	131	58	239	33	994	8
97	82	132	57	244	32	1136	7
98	81	133	56	250	31	1278	6
99	80	135	55	256	30	1420	5
101	79	136	54	261	29	1775	4
102	78	138	53	267	28	2364	3
104	77	139	52	273	27	3550	2
105	76	141	51	278	26	7100	1

PIN DOWEL TREE SHELTERED WORKSHOP STANDARD

SCORES (SEC.)	f
50 - 174	6
175 - 299	15
300 - 424	12
425 - 549	3
550 - 674	4
675 - 799	2
800 - 924	0
925 - 1049	3
1050 - 1174	0
1175 - 1299	0
1300 - 1424	0
1425 - 1549	0
1550 - 1674	0
1675 - 1799	0
1800 - 1924	0
1925 - 2049	1
	N = 46

N 25 = 11.5 (12)

Q_1 = 550 - 2/3 (125)
= 550 - 83.33
= 467

Q_3 = 300 - 2/3 (125
= 300 - 83.33
= 217

N 75 = 3)11.5) = 34.5 (35)

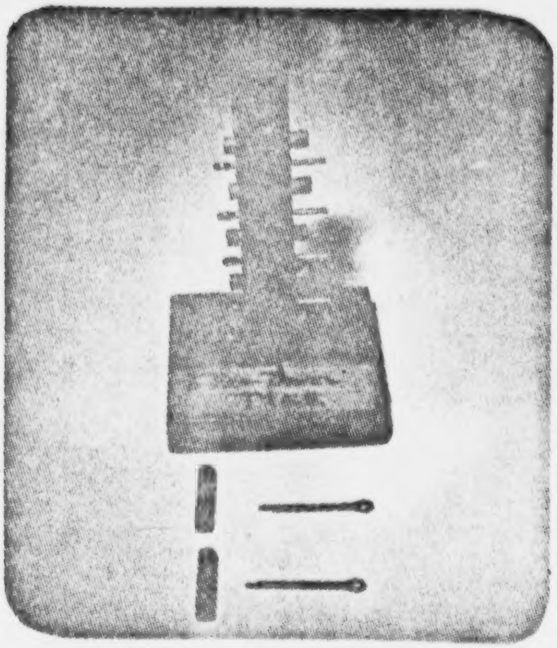
Q_2 = 425 - 5/6 (125
= 425 - 104.16
= 321

SCORING (SEC.)

Above Average = 0 - 216
Average = 217 - 466
Below Average = 467+

$\overline{X}$ = 413
Median = 321
Mode = 238

#9 COTTER PIN-DOWEL SEQUENCE



1. Purpose: To evaluate and teach ability to align complex parts.

2. Materials:
   a) A 1" x 6-1/4" dowel mounted on a 4" x 4" base. The large dowel should be drilled through at right angles 1/2" apart. These holes should be drilled through at right angles to receive a 1/8" cotter pin.

   b) 11 dowel pegs 5/16" x 1-1/2" long with a 1/8" hole in center.
   c) 11 cotter pins 1/8" x 2" long.

3. Instructions:
   This exercise should begin disassembled. The subject is instructed to grasp the small dowel rod and insert it into the top hole of the large dowel. The large dowel is then rotated 90 degrees at which point the hole in its center is aligned with the corresponding hole in the large dowel rod. Next, a cotter pin is inserted through both holes, securing the small dowel. The subject proceeds in this manner until all of the small dowels and cotter pins are in place. Care must be taken to correct any mistakes during the practice period.

4. Major Evaluation Items:
   a) Ability to line up holes
   b) Hand-eye coordination.
   c) Aiming (small dowel to large dowel)
   d) Aiming (cotter pin to aligned holes)

5. Time Standard:
   a) Competitive-Refer to appropriate standards section
   b) Sheltered Workshop-Refer to appropriate standards section

NUT WASHER BOLT COMPETITIVE NORM TABLE

SEC	% COMP. $\bar{X}$	SEC	% COMP. $\bar{X}$	SEC	% COMP. $\bar{X}$	SEC	% COMP. $\bar{X}$
759	100	1139	75	1518	50	3036	25
774	99	1154	74	1579	49	3194	24
789	98	1169	73	1639	48	3352	23
805	97	1184	72	1700	47	3509	22
820	96	1199	71	1761	46	3667	21
835	95	1214	70	1822	45	3795	20
850	94	1230	69	1882	44	4202	19
865	93	1245	68	1943	43	4578	18
880	92	1260	67	2004	42	4955	17
896	91	1275	66	2064	41	5331	16
911	90	1290	65	2125	40	5708	15
926	89	1305	64	2186	39	6084	14
941	88	1321	63	2247	38	6461	13
956	87	1336	62	2307	37	6837	12
972	86	1351	61	2368	36	7214	11
987	85	1366	60	2429	35	7590	10
1002	84	1381	59	2490	34	9108	9
1017	83	1397	58	2550	33	10626	8
1032	82	1412	57	2611	32	12144	7
1047	81	1427	56	2672	31	13662	6
1063	80	1442	55	2732	30	15180	5
1078	79	1457	54	2793	29	18975	4
1093	78	1472	53	2854	28	25297	3
1108	77	1488	52	2915	27	37950	2
1123	76	1503	51	2975	26	75900	1

NUT, WASHER, BOLT SHELTERED WORKSHOP STANDARD

SCORES (SEC.)	f
900 - 1259	4
1260 - 1439	5
1440 - 1619	3
1620 - 1799	8
1800 - 1979	2
1980 - 2159	4
2160 - 2339	9
2340 - 2519	2
2520 - 2699	2
2700 - 2879	2
2880 - 3059	0
3060 - 3239	0
3240 - 3419	0
3420 - 3599	1
3600 - 3779	1

N = 43

N 25 = 10.75 (11)

N 75 = 3)10.75) = 32.25 (32)

Q_1 = 2340 - 1/3 (180
= 2340 - 60
= 2280

Q_2 = 1980 - 1/2 (180)
= 1980 - 9
= 1890

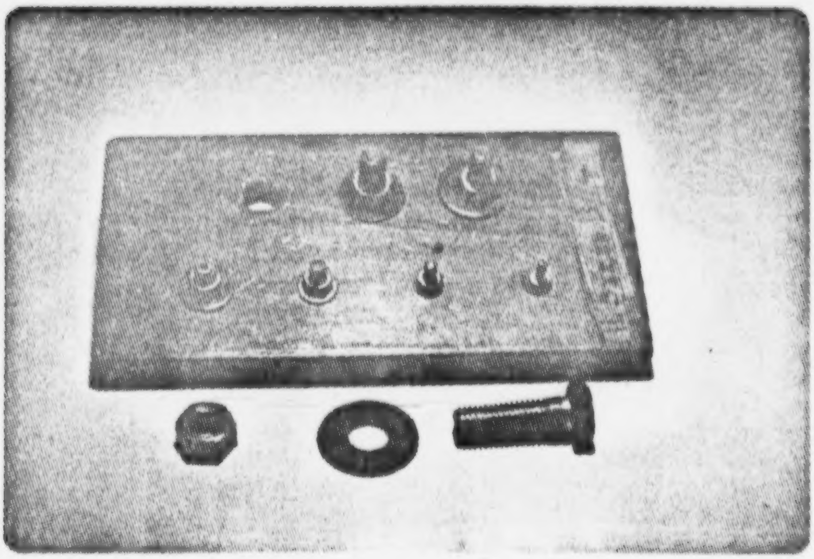
Q_3 = 1620 - 1/3 (180)
= 1620 - 60
= 1560

SCORING (SEC.)

Above Average = 0 - 1559
Average = 1560 - 2279
Below Average = 2280+

$\overline{X}$ = 1959
Median = 1890
Mode = 2250

#11 SIZED BOLT



1. Purpose: To evaluate and teach the ability to perceive size difference and use size in sequence assemblies.

2. Materials:
   a) A block of wood 5" x 10" x 11/16" drilled with 7 holes in two rows ranging in sizes 1/8", 1/4", 5/16", 3/8", 7/16", 1/2", and 9/16".
   b) One washer and one nut for each bolt in above sizes.
   c) Bolts 2" long in above sizes.

3. Instructions:
   This task is begun with the task material assembled. The subject is instructed to remove all nuts, bolts, and washers from the block. The subject is then instructed to replace all of these materials, beginning with the largest nut, bolt, and washer. The key to this exercise is the largest remaining bolt. If the subject is able to comprehend and follow this concept, it will be impossible for him to make a mistake because of size. Completion includes both assembly and disassembly. Any errors should be immediately corrected during the practice period.

4. Major Evaluation Items:
   a) Sizing by decending size
   b) Inclusion of washer
   c) Correct bolt in correct hole

5. Time Standard:
   a) Competitive-Refer to appropriate standards section
   b) Sheltered Workshop-Refer to appropriate standards section

SIZED BOLT COMPETITIVE NORM TABLE

SEC	% COMP. $\bar{X}$	SEC	% COMP. $\bar{X}$	SEC	% COMP. $\bar{X}$	SEC	% COMP. $\bar{X}$
169	100	254	75	338	50	676	25
172	99	257	74	352	49	710	24
176	98	260	73	365	48	744	23
179	97	264	72	379	47	777	22
183	96	267	71	392	46	811	21
186	95	270	70	406	45	845	20
189	94	274	69	419	44	930	19
193	93	277	68	433	43	1014	18
196	92	281	67	446	42	1098	17
199	91	284	66	460	41	1183	16
203	90	287	65	473	40	1268	15
206	89	291	64	487	39	1352	14
210	88	294	63	500	38	1437	13
213	87	297	62	514	37	1521	12
216	86	300	61	527	36	1606	11
220	85	304	60	541	35	1690	10
223	84	308	59	554	34	2028	9
226	83	311	58	568	33	2366	8
230	82	314	57	581	32	2704	7
233	81	318	56	595	31	3042	6
237	80	321	55	608	30	3380	5
240	79	324	54	622	29	4225	4
243	78	328	53	635	28	5632	3
247	77	331	52	649	27	8450	2
250	76	335	51	662	26	16900	1

SIZED BOLT SHELTERED WORKSHOP STANDARD

SCORES (SEC.)	f
125 - 189	3
190 - 254	5
255 - 319	12
320 - 384	5
385 - 449	6
450 - 514	5
515 - 579	3
580 - 644	4
645 - 709	1
710 - 774	2
775 - 839	1
840 - 904	1
905 - 969	0
970 - 1034	0
1035 - 1099	1

N = 49

N 25 = 12.25

N 75 = 3 (12.25) = 36.75 (37)

Q_1 = 580 - 2/3 (65)
= 580 - 43.33
= 537

Q_2 = 385 - 1/5 (65)
= 385 - 13
= 372

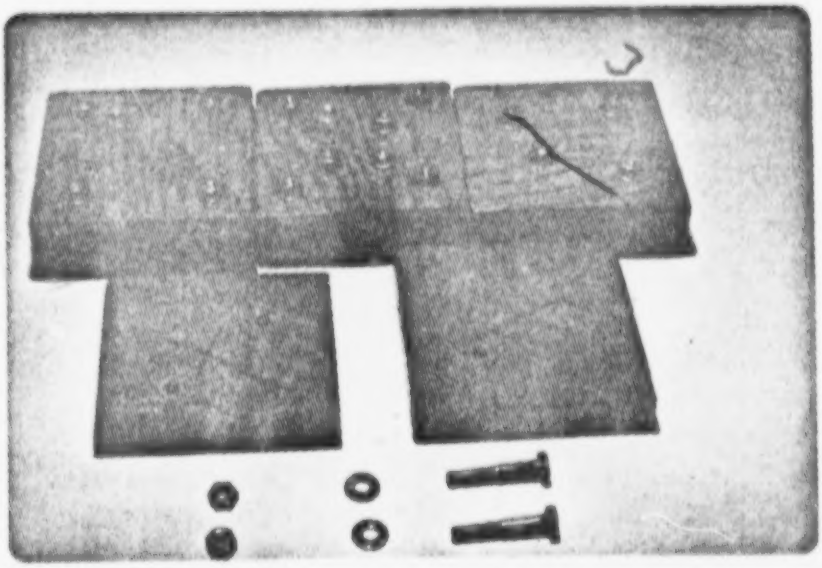
Q_3 = 320 - 8/12 (65)
= 320 - 43.33
= 277

SCORING (SEC.)

Above Average = 0 - 276
Average = 277 - 536
Below Average = 537+

$\overline{X}$ = 421
Median = 372
Mode = 288

#12 BLOCK-BOLT ASSEMBLY



1. Purpose: To evaluate and teach ability to incorporate learned skills in previous exercises. These skills consist of size perception, alignment of parts, and accurate small assembly.

2. Materials:
   a) 4 blocks of wood, 4-1/2" x 4" x 3/8" thick.
   b) 4 blocks of wood, 4" x 4" x 3/4" thick. These blocks should be paired together. In the first pair, two equal sized holes should be drilled on a diagonal line extending to opposite corners of the blocks. On the second pair, 4 equal size randomly placed holes should be drilled. On the third pair, 6 random holes should be drilled, and on the fourth pair, 8 holes should be drilled (randomly assigned positions).
   c) Several sized nuts, bolts, and washers to fit the different hole sizes.

3. Instructions:
   This task is begun with each set of blocks individually disassembled when needed. The subject will align the holes in both pieces of wood and push the bolts through the holes from the smaller block side. The washers and nuts will then be placed on the bolts. This process should continue until the blocks are completed. Again, the largest bolts, nuts and washers should be placed first. The subject should begin with the least difficult (2 holes) and progress upward by difficulty. Errors should be shown and corrected during practice period.

4. Major Evaluation Items:
   1) Alignment of blocks
   2) Correct bolt in holes
   3) Washer on correct side

5. Time Standard:
   a) Competitive-Refer to appropriate standards section
   b) Sheltered Workshop-Refer to appropriate standards section

BLOCK BOLT ASSEMBLY COMPETITIVE NORM TABLE

SEC	% - COMP. X	SEC	% - COMP. X	SEC	% - COMP. X	SEC	% - COMP. X
300	100	450	75	600	50	1200	25
306	99	456	74	624	49	1260	24
312	98	462	73	648	48	1320	23
318	97	468	72	672	47	1380	22
324	96	474	71	696	46	1440	21
330	95	480	70	720	45	1500	20
336	94	486	69	744	44	1650	19
342	93	492	68	768	43	1800	18
348	92	498	67	792	42	1950	17
354	91	504	66	816	41	2100	16
360	90	510	65	840	40	2250	15
366	89	516	64	864	39	2400	14
372	88	522	63	888	38	2550	13
378	87	528	62	912	37	2700	12
384	86	534	61	936	36	2850	11
390	85	540	60	960	35	3000	10
396	84	546	59	984	34	3600	9
402	83	552	58	1008	33	4200	8
408	82	558	57	1032	32	4800	7
414	81	564	56	1056	31	5400	6
420	80	570	55	1080	30	6000	5
426	79	576	54	1104	29	7500	4
432	78	582	53	1128	28	9990	3
438	77	588	52	1152	27	15000	2
444	76	594	51	1176	26	30000	1

BLOCK BOLT ASSEMBLY SHELTERED WORKSHOP STANDARD

SCORES (SEC.)	f
300 - 499	6
500 - 699	20
700 - 899	8
900 - 1099	5
1100 - 1299	2
1300 - 1499	2
1500 - 1699	2
1700 - 1899	1
1900 - 2099	1
2100 - 2299	0
2300 - 2499	0
2500 - 2699	0
2700 - 2899	0
2900 - 3099	0
3100 - 3299	1
	N = 48

N 25 = 12

N 75 = 3 (12) = 36

Q_1 = 1100 - 2/5 (200)
= 1100 - 80
= 1020

Q_2 = 700 - 1/10 (200
= 700 - 20
= 680

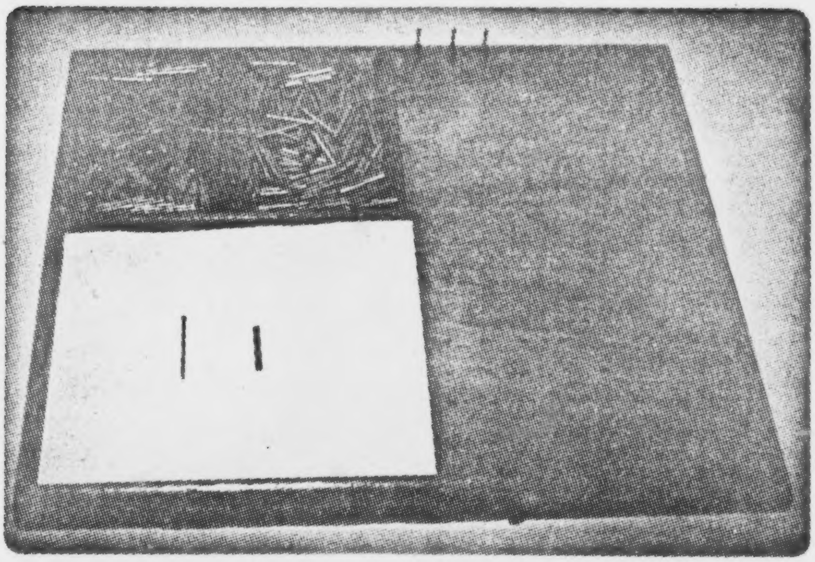
Q_3 = 700 - 7/10 (200)
= 700 - 140
= 560

SCORING (SEC)

Above Average = 0 - 559
Average = 560 - 1019
Below Average = 1020 +

$\overline{X}$ = 856
Median = 680
Mode = 600

#13 BI-MANUAL ASSEMBLY



1. Purpose: To evaluate and teach bi-manual dexterity, depth perception, physical endurance, and frustration tolerance.

2. Materials:
   a) A base constructed of 3/4" plywood cut to 18-1/2" x 16-3/4" with two trays to hold small parts, 16 horizontal rows of 8 holes each should be drilled to a depth of 3/8" and spaced 1" apart (9/32" diameter).
   b) 128 hollow tubes 1/4" outside diameter, 1/8" inside diameter and 1-3/8" long.
   c) 128 #6 casing nails.

3. Instructions:
   This task is begun disassembled. With the nails and tubes separated in to the two trays, instruct the subject to position the base directly in front of himself with the trays in the upper left hand corner. With the right hand he should place a tube in the top corner hole and with the left hand, place a nail into the tube. The subject should be cautioned to start in the top left corner, then proceed across horizontally till all holes in that row have been filled and then start the next row. Errors should be corrected during practice period.

4. Major Evaluation Items:
   a) Bi-manual usage
   b) Filling holes from correct direction
   c) Complete filling of row before progressing

5. Time Standard:
   a) Competitive-Refer to appropriate standards section
   b) Sheltered Workshop-Refer to appropriate standards section

BI-MANUAL COMPETITIVE NORM TABLE

SEC	% - COMP. X	SEC	% - COMP. X	SEC	% - COMP. X	SEC	% - COMP. X
480	100	720	75	960	50	1920	25
490	99	730	74	998	49	2016	24
499	98	739	73	1037	48	2112	23
509	97	749	72	1075	47	2208	22
518	96	758	71	1114	46	2304	21
528	95	768	70	1152	45	2400	20
538	94	778	69	1190	44	2640	19
547	93	787	68	1229	43	2880	18
557	92	797	67	1267	42	3120	17
566	91	806	66	1306	41	3360	16
576	90	816	65	1344	40	3600	15
586	89	826	64	1382	39	3840	14
595	88	835	63	1421	38	4080	13
605	87	845	62	1459	37	4320	12
614	86	854	61	1498	36	4560	11
624	85	864	60	1536	35	4800	10
634	84	874	59	1574	34	5760	9
643	83	883	58	1613	33	6720	8
653	82	893	57	1651	32	7680	7
662	81	902	56	1690	31	8640	6
672	80	912	55	1728	30	9600	5
682	79	922	54	1766	29	12000	4
691	78	931	53	1805	28	15998	3
701	77	941	52	1843	27	24000	2
710	76	950	51	1882	26	48000	1

BI-MANUAL SHELTERED WORKSHOP STANDARD

SCORES (SEC.)	f
400 - 549	3
550 - 699	3
700 - 849	10
850 - 999	7
1000 - 1149	4
1150 - 1299	6
1300 - 1449	3
1450 - 1599	5
1600 - 1749	2
1750 - 1899	2
1900 - 2049	1
2050 - 2199	1
2200 - 2349	0
2350 - 2499	0
2500 - 2649	1

N = 48

N 25 = 12

N 75 = 3 (12) = 36

Q_1 = 1450

Q_2 = 1150 - 3/4 (150)
= 1150 - 112.5
= 1038

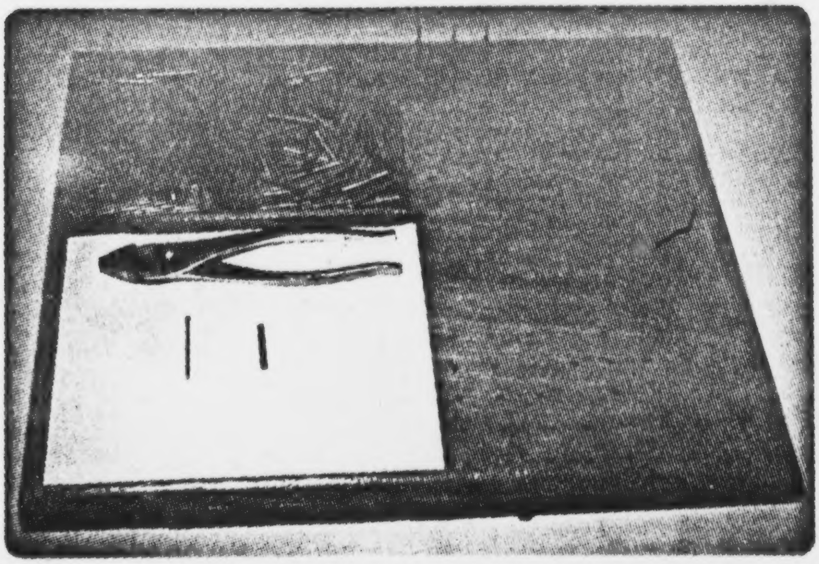
Q_3 = 850 - 4/10 (150)
= 850 - 60
= 790

SCORING (SEC.)

Above Average = 0 - 789
Average = 790 - 1449
Below Average = 1450+

$\overline{X}$ = 1090
Median = 1038
Mode = 775

#14 THE PIN-POP RIVET BOARD



1. Purpose: To evaluate and teach the ability to judge distance using pliers as an instrument to grasp, and as an extension of the hand, aiming, range of motion, frustration tolerance and physical endurance.

2. Materials:
   Same as in Bi-Manual Assembly with the exception of a pair of standard pliers.

3. Instructions:
   This task is begun disassembled. The nails and tubes should be separated into trays, with the trays in the upper left hand corner. Instruct the subject in the proper usage of the pliers. He should be taught to hold the pliers with the base of the thumb around one handle and three fingers around the other handle. The little finger should be placed inside the handle to push the pliers into the open position when the hand is opened. Demonstrate to the subject that he must pick a tube up by bringing the pliers to right angles to the tube. Instruct the subject to lift the tube firmly and place it in the left end of the top row. Then instruct the subject to do the same with the nails as prescribed above for tubes. The subject should work horizontally until a row is finished then proceed with the beginning of the next row. Be insistant that a nail follow the insertion of every tube and that each row is filled before the next row is started. Errors should be corrected during the practice period.

4. Major Evaluation Items:
   - a) Ability of effectively utilizing pliers
   - b) Depth perception
   - c) Direction following
   - d) Physical endurance
   - e) Frustration tolerance

5. Time Standard:
   - a) Competitive-Refer to appropriate standards section
   - b) Sheltered Workshop-Refer to appropriate standards section

PIN POP RIVET COMPETITIVE NORM TABLE

SEC	% COMP. $\bar{X}$	SEC	% COMP. $\bar{X}$	SEC	% COMP. $\bar{X}$	SEC	% COMP. $\bar{X}$
1255	100	1883	75	2510	50	5020	25
1280	99	1908	74	2610	49	5271	24
1305	98	1933	73	2711	48	5522	23
1330	97	1958	72	2811	47	5773	22
1355	96	1983	71	2912	46	6024	21
1381	95	2008	70	3012	45	6275	20
1406	94	2033	69	3112	44	6903	19
1431	93	2058	68	3213	43	7530	18
1456	92	2083	67	3313	42	8158	17
1481	91	2108	66	3414	41	8785	16
1506	90	2134	65	3514	40	9413	15
1531	89	2159	64	3614	39	10040	14
1556	88	2184	63	3715	38	10668	13
1581	87	2209	62	3815	37	11295	12
1606	86	2234	61	3916	36	11923	11
1632	85	2259	60	4016	35	12550	10
1657	84	2284	59	4116	34	15060	9
1682	83	2309	58	4217	33	17570	8
1707	82	2334	57	4317	32	20080	7
1732	81	2359	56	4418	31	22590	6
1757	80	2385	55	4518	30	25100	5
1782	79	2410	54	4618	29	31375	4
1807	78	2435	53	4719	28	41829	3
1832	77	2460	52	4819	27	62750	2
1857	76	2485	51	4920	26	125500	1

PIN POP RIVET SHELTERED WORKSHOP STANDARD

SCORES (SEC.)	f
1400 - 1679	5
1680 - 1959	3
1960 - 2239	6
2240 - 2519	5
2520 - 2799	6
2800 - 3079	3
3080 - 3359	1
3360 - 3639	4
3640 - 3919	2
3920 - 4199	1
4200 - 4479	2
4480 - 4759	0
4760 - 5039	0
5040 - 5319	0
5320 - 5599	1

N = 39

N25 = 9.75 (10)

N75 = 3 (9.75) = 29.25 (29)

Q_1 = 3360

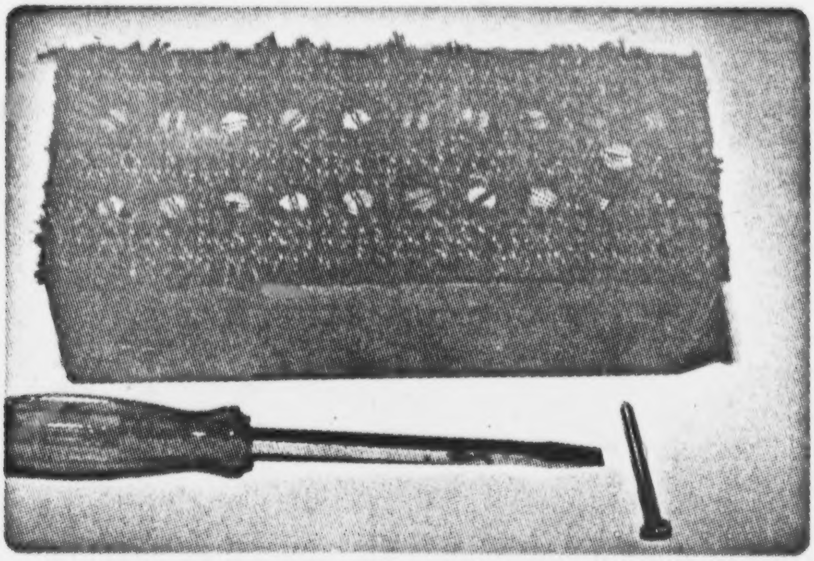
Q_2 = 2520

Q_3 = 2240 - 4/6 (180)
= 2240 - 120
= 2120

$\overline{X}$ = 2711
Median = 2520
Mode = 2100, 2660 (Bimodal)

Above Average = 0 - 2119
Average = 2120 - 3359
Below Average = 3360+

#15 SCREWDRIVER EXERCISE



1. Purpose: To evaluate and teach the primary use of the screwdriver and physical endurance.

2. Materials:
   a) One 3-1/2" x 4-5/8" x 11" block of wood drilled with two rows of 10 holes each down the 11" of length.
   b) 20 wood screws 3" long.
   c) One medium to large screwdriver.

3. Instructions:
   This task is begun assembled. Instruct the subject on the correct usage of the screwdriver. The thumb and index finger of the less dominant hand should be placed around the shank portion of the screwdriver just below the bottom of the handle. This will cause the screwdriver to be held steady. The dominant hand should be placed on the handle to allow the screwdriver to be turned. The examiner should demonstrate to the subject by starting the screw in the upper left hand hole with the hand and finishing it with the screwdriver in the prescribed method. The exercise should be started with the screws in the holes. (the exercise will include both disassembly and assembly). Errors should be corrected during the practice period.

4. Major Evaluation Items:
   a) Correct usage of screwdriver
   b) Complete tightening of screws

5. Time Standard:
   a) Competitive-Refer to appropriate standards section
   b) Sheltered Workshop-Refer to appropriate standards section

SCREWDRIVER COMPETITIVE NORM TABLE

SEC	% - COMP. X	SEC	% - COMP. X	SEC	% - COMP. X	SEC	% - COMP. X
619	100	929	75	1238	50	2476	25
631	99	941	74	1288	49	2600	24
644	98	953	73	1337	48	2723	23
656	97	966	72	1387	47	2847	22
669	96	978	71	1436	46	2971	21
681	95	990	70	1486	45	3095	20
693	94	1003	69	1535	44	3405	19
706	93	1015	68	1585	43	3714	18
718	92	1028	67	1634	42	4024	17
730	91	1040	66	1684	41	4333	16
743	90	1052	65	1733	40	4643	15
755	89	1065	64	1783	39	4952	14
767	88	1077	63	1832	38	5262	13
780	87	1089	62	1882	37	5571	12
792	86	1102	61	1931	36	5881	11
805	85	1114	60	1981	35	6190	10
817	84	1127	59	2030	34	7428	9
829	83	1139	58	2080	33	8666	8
842	82	1151	57	2129	32	9904	7
854	81	1164	56	2179	31	11142	6
867	80	1176	55	2228	30	12380	5
879	79	1188	54	2278	29	15475	4
891	78	1201	53	2327	28	20631	3
904	77	1213	52	2377	27	30950	2
916	76	1225	51	2426	26	61900	1

SCREWDRIVER SHELTERED WORKSHOP STANDARD

SCORES (SEC.)	f
500 - 664	1
665 - 829	1
830 - 994	2
995 - 1159	3
1160 - 1324	2
1325 - 1489	5
1490 - 1654	1
1655 - 1819	2
1820 - 1984	0
1985 - 2149	1
2150 - 2314	1
2315 - 2479	0
2480 - 2644	0
2645 - 2809	0
2810 - 2974	0
2975 - 3139	0
	N = 20

N25 = 5

N75 = 3 (5) = 15

Q_1 = 1655

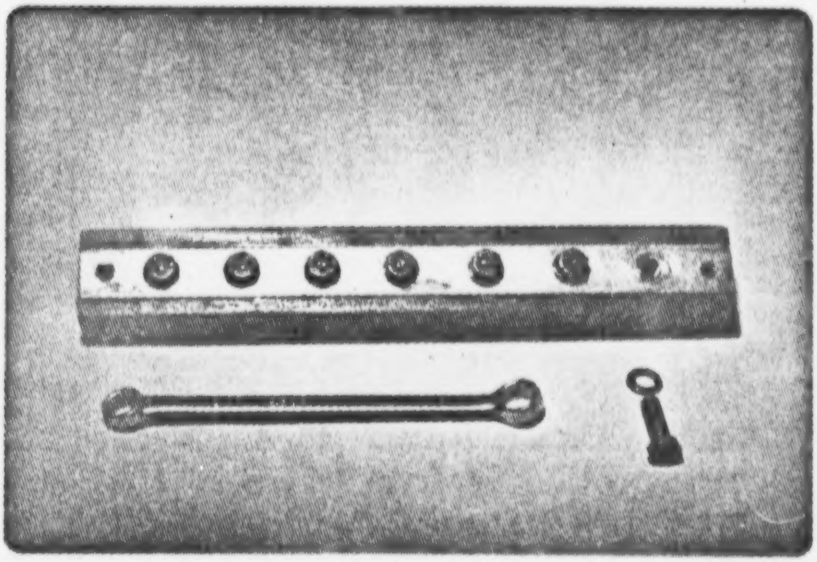
Q_2 = 1490 - 5/6 (165)
= 1400 - 138
= 1262

Q_3 = 1160 - 2/3 (165)
= 1160 - 110
= 1050

$\overline{X}$ = 1422
Median = 1262
Mode = 1408

Above Average = 0 - 1049
Average = 1050 - 1654
Below Average = 1655+

#16 WRENCH EXERCISE



1. Purpose: To evaluate and teach the primary usage of the wrench.

2. Materials:
   - a) An aluminum bar mounted on a block of wood 12-1/2" x 1-3/4" x 1" high. Both should be tapped for 5/16" bolts.
   - b) 7 5/16" x 1-1/4" bolts.
   - c) 7 5/16" lock washers.
   - d) 9/16" box end wrench.

3. Instructions:
   This task is begun assembled. The subject is instructed to hold the block with the non-dominant hand and to hold the wrench with the dominant one. He is then told to loosen all of the bolts (using the wrench) by turning them in a counter clockwise manner. Once they are all loosened, he then is to fully remove them by hand. Once this is completed, he is to immediately re-insert the screws in the holes, tightening them down (clockwise) as far as possible by hand. Then he is to tighten them with the wrench. Both assembly and disassembly are timed as a composite. Errors should be corrected during the practice period.

4. Major Evaluation Items:
   - a) Use of wrench
   - b) Correct rotation for tightening and/or loosening

5. Time Standard:
   - a) Competitive-Refer to appropriate standards section
   - b) Sheltered Workshop-Refer to appropriate standards section

WRENCH EXERCISE COMPETITIVE NORM TABLE

SEC	% - COMP. X	SEC	% - COMP. X	SEC	% - COMP. X	SEC	% - COMP. X
207	100	311	75	414	50	828	25
211	99	315	74	431	49	869	24
215	98	319	73	447	48	911	23
218	97	323	72	464	47	952	22
224	96	327	71	480	46	994	21
228	95	331	70	497	45	1035	20
232	94	335	69	513	44	1139	19
236	93	339	68	530	43	1242	18
240	92	344	67	546	42	1346	17
244	91	348	66	563	41	1450	16
248	90	352	65	580	40	1553	15
253	89	356	64	596	39	1656	14
257	88	360	63	613	38	1760	13
261	87	364	62	629	37	1863	12
265	86	368	61	646	36	1967	11
269	85	373	60	662	35	2070	10
273	84	377	59	679	34	2484	9
277	83	381	58	696	33	2898	8
282	82	385	57	712	32	3312	7
286	81	389	56	729	31	3726	6
290	80	393	55	745	30	4140	5
294	79	397	54	762	29	5175	4
298	78	402	53	778	28	6899	3
302	77	406	52	795	27	10350	2
306	76	410	51	811	26	20700	1

WRENCH EXERCISE SHELTERED WORKSHOP STANDARD

SCORES (SEC.)	f
140 - 199	1
200 - 259	1
260 - 319	4
320 - 379	6
380 - 439	5
440 - 499	5
500 - 559	7
560 - 619	4
620 - 679	2
680 - 739	3
740 - 799	4
800 - 859	2
860 - 919	0
920 - 979	1
980 - 1039	0
1040 - 1099	3

N = 48

N 25 = 12

N 75 = 3 (12) = 36

Q_1 = 740 - 2/3 (50)
= 740 - 33.33
= 707

Q_2 = 560 - 5/7 (50)
= 560 - 35.71
= 524

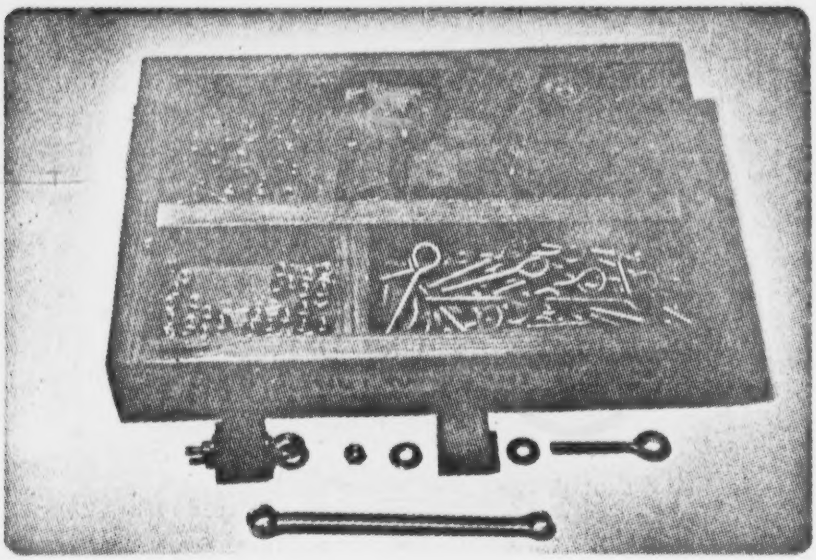
Q_3 = 380

SCORING (SEC.)

Above Average = 0 - 379
Average = 380 - 706
Below Average = 707+

$\overline{X}$ = 546
Median = 524
Mode = 525

#17 EYEBOLT ASSEMBLY



1. Purpose: To evaluate and teach wrench usage and sequencial small assembly.

2. Materials:
   a) 4 dozen eyebolts 1/8" x 2".
   b) 4 dozen wooden blocks 3/4" x 1-1/4".
   c) 4 dozen 1/8" nuts.
   d) 8 dozen 1/8" washers.
   e) 1 open end wrench.

3. Instructions:
   This task is begun disassembled. The materials should be lined up in front of the subject from the less dominant side. The order should be eyebolts, half of the washers, blocks, the other half of the washers, nuts and a wrench.

   With the less dominant hand, pick up end eyebolt, slide a washer over it, insert the eyebolt through the block, add another washer, and put the nut on the bolt. The nut is to be tightened as much as possible by hand, and then tightened with the wrench, before starting the next eyebolt. Errors should be corrected during the practice period.

4. Major Evaluation Items:
   a) Correct sequence of assembly
   b) Correct use of the wrench
   c) Correct rotation for tightening

5. Time Standard:
   a) Competitive-Refer to appropriate standards section
   b) Sheltered Workshop-Refer to appropriate standards section

EYEBOLT ASSEMBLY COMPETITIVE NORM TABLE

SEC	% COMP. $\bar{X}$	SEC	% COMP. $\bar{X}$	SEC	% COMP. $\bar{X}$	SEC	% COMP. $\bar{X}$
774	100	1161	75	1548	50	3096	25
789	99	1176	74	1610	49	3251	24
805	98	1192	73	1672	48	3406	23
820	97	1207	72	1734	47	3560	22
836	96	1223	71	1796	46	3715	21
851	95	1238	70	1858	45	3870	20
867	94	1254	69	1920	44	4257	19
882	93	1269	68	1981	43	4644	18
898	92	1285	67	2043	42	5031	17
913	91	1300	66	2105	41	5418	16
929	90	1316	65	2167	40	5805	15
944	89	1331	64	2229	39	6192	14
960	88	1347	63	2291	38	6579	13
975	87	1362	62	2353	37	6966	12
991	86	1378	61	2415	36	7353	11
1006	85	1393	60	2477	35	7740	10
1022	84	1409	59	2539	34	9288	9
1037	83	1424	58	2601	33	10836	8
1053	82	1440	57	2663	32	12384	7
1068	81	1455	56	2724	31	13932	6
1084	80	1471	55	2786	30	15480	5
1099	79	1486	54	2848	29	19350	4
1115	78	1502	53	2910	28	25774	3
1130	77	1517	52	2972	27	38700	2
1146	76	1533	51	3034	26	77400	1

EYEBOLT ASSEMBLY SHELTERED WORKSHOP STANDARD

SCORES (SEC.)	f
700 - 899	2
900 - 1099	3
1100 - 1299	5
1300 - 1499	7
1500 - 1699	4
1700 - 1899	5
1900 - 2099	3
2100 - 2299	1
2300 - 2499	4
2500 - 2699	2
2700 - 2899	2
2900 - 3099	1
3100 - 3299	3
3300 - 3499	2
3500 - 3699	0
3700 - 3899	1
	N = 45

N 25 = 11.25 (11)

N 75 = 3 (11.25) = 33.75 (34)

Q_1 = 2500

Q_2 = 1900 - 4/5 (200)
= 1900 - 160
= 1740

Q_3 = 1500 - 6/7 (200)
= 1500 - 171.42
= 1329

SCORING (SEC.)

Above Average = 0 - 1328
Average = 1329 - 2499
Below Average = 2500+

$\overline{X}$ = 1958
Median = 1740
Mode = 1400

#18 EYEBOLT DISASSEMBLY

1. Purpose: Disassembly skills involved in Eyebolt Assembly.

2. Materials: Same as for the Eyebolt Assembly.

3. Instructions:
   This task is begun assembled. This exercise should immediately follow th the assembly process. The student should be instructed to place the materials in piles according to their order of disassembly.

4. Major Evaluation Items:
   a) Correct use of the wrench
   b) Correct rotation for loosening
   c) Placement of materials in piles on the basis of the disassembly sequence

5. Time Standard:
   a) Competitive-Refer to appropriate standards section
   b) Sheltered Workshop-Refer to appropriate standards section

EYEBOLT DISASSEMBLY COMPETITIVE NORM TABLE

SEC	% - COMP. X	SEC	% - COMP. X	SEC	% - COMP. X	SEC	% - COMP. X
405	100	608	75	810	50	1620	25
413	99	616	74	842	49	1701	24
421	98	624	73	875	48	1782	23
429	97	632	72	907	47	1863	22
437	96	640	71	940	46	1944	21
446	95	648	70	972	45	2025	20
454	94	656	69	1005	44	2228	19
462	93	664	68	1037	43	2430	18
470	92	672	67	1069	42	2633	17
478	91	680	66	1102	41	2835	16
486	90	689	65	1134	40	3038	15
494	89	697	64	1166	39	3240	14
502	88	705	63	1199	38	3443	13
510	87	713	62	1231	37	3645	12
518	86	721	61	1264	36	3848	11
527	85	729	60	1296	35	4050	10
535	84	737	59	1328	34	4860	9
543	83	745	58	1361	33	5670	8
551	82	753	57	1393	32	6480	7
559	81	761	56	1426	31	7290	6
567	80	770	55	1458	30	8100	5
575	79	778	54	1490	29	10125	4
583	78	786	53	1523	28	13499	3
591	77	794	52	1555	27	20250	2
599	76	802	51	1588	26	40500	1

EYEBOLT DIS-ASSEMBLY SHELTERED WORKSHOP STANDARD

SCORES (SEC.)	f
300 - 444	2
445 - 589	1
590 - 734	5
735 - 879	5
880 - 1024	7
1025 - 1169	3
1170 - 1314	2
1315 - 1459	4
1460 - 1604	4
1605 - 1749	1
1750 - 1894	4
1895 - 2039	0
2040 - 2184	1
2185 - 2329	1
2330 - 2474	1
2475 - 2620	1
	N = 42

N 25 = 10.5 (11)

N 75 = 3 (10.5) = 31.5 (32)

Q_1 = 1605 - 2/4 (145)
= 1605 - 47.5
= 1558

Q_2 = 1170 - 2/3 (145)
= 1170 - 63.33
= 1007

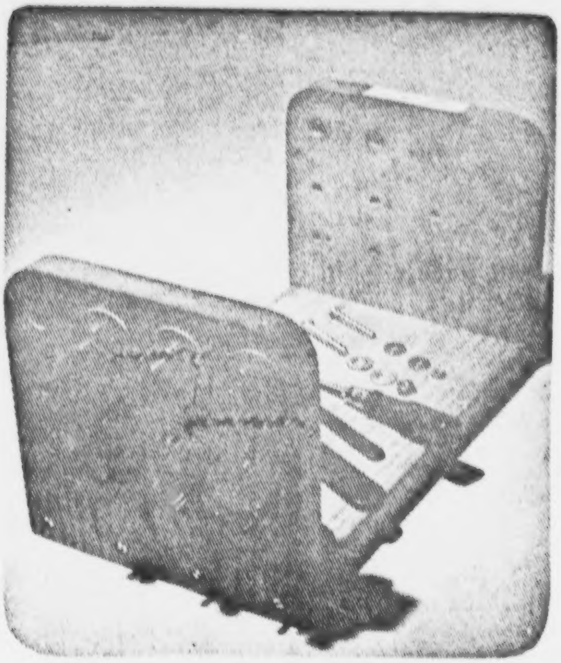
Q_3 = 880 - 2/5 (145)
= 880 - 38
= 842

SCORING (SEC.)

Above Average = 0 - 841
Average = 842 - 1557
Below Average = 1558+

$\overline{X}$ = 1221
Median = 1007
Mode = 953

#19 BENNETT HAND TOOL



1. Purpose: To evaluate and teach the use of basic mechanics tools in terms of manipulative skill which is independent of intellectual skills.

2. Materials: One Bennett Hand-Tool Dexterity Test Kit including:

   a) wooden frame
   b) 4-5/8" x 2-1/2" bolts
   c) 4-5/8" nuts
   d) 8-5/8" washers
   e) 4-5/16" x 2" bolts
   f) 4-5/16" nuts
   g) 8-5/16" washers
   h) 4-1/4" x 2" bolts
   i) 4-1/4" nuts
   j) 8-1/4" washers
   k) 1-10" crescent wrench
   l) 1-15/16" open end wrench
   m) 1-1/2" open end wrench
   n) 1-8" slot screwdriver

3. * Instructions:
   Check the apparatus to make certain that the bolts are in the holes on one of the uprights with the heads of the bolts on the inside. Check the bolts to see that the nuts cannot be removed with fingers or, on the other hand, are not so tight that it will be difficult to remove them with wrenches. Make certain that the nuts, once loosened with wrenches, can be removed easily and quickly with the fingers. Close the jaws of the adjustable wrench completely. Place the tools between the uprights. Set the frame with the bolts at the subject's left.

(The essence of the examination procedure is to measure the ability of the examinee to perform the manual tasks required; ability to understand directions is not part of the intended measurement. Accordingly, the examiner should feel free to supplement the following directions in any reasonable way to improve the examinee's understanding of the task.) Then say: "The idea of this test is to remove all these bolts from this upright and place them on corresponding rows on the other upright with the heads of the bolts on the inside. "The best way is to remove all the bolts from the top row and lay them down on the bench. "It is quicker to loosen all the nuts on each row before putting down your tools. Use two tools to loosen each bolt. Then spin off the nuts with your fingers. "Them remove the middle row and lay those parts on the bench. "However, as you remove each bolt from the bottom row, place this bolt in a hole in the bottom row of the other upright. "Mount all the smallest bolts in a row and tighten the nuts with your fingers. Then use the two appropriate tools to tighten further. "After you have mounted the smallest bolts on the bottom row of the right upright, then mount and tighten the medium sized bolts in the same manner. "The final job is to mount and tighten the largest bolts in the top row of holes. "When you fasten the nuts on these bolts, tighten them with the wrenches just tight enough so that they cannot be removed with the fingers. Do not put too much pressure on the wrenches in tightening the nuts. "In placing the bolts in the right-hand upright, make sure that the heads of the bolts are on the inside. "All right-go ahead. Work as rapidly as possible." Start the stop watch as soon as the examinee picks up the first wrench.

(The score on this test is the amount of time that it takes the examinee to remove the nuts and bolts from the left upright and mount them on the right upright. The test demonstrator records time by starting the stop watch as soon as the examinee picks up the first wrench. As soon as the last bolt is tightened on the right upright, the examiner stops the stop watch and records the time.)

*Taken from Hand-Tool Dexterity Manual, George K. Bennett, 1965 Revision (The Psychological Corporation)

4. Major Evaluation Items:
   a) Correct use of tools
   b) Insertion of bolts from correct side
   c) Both nut, washer unit assembled correctly
   d) Nuts tight
   e) Sequence of assembly and disassembly is correct

5. Time Standard:
   a) Competitive-Refer to appropriate standards section
   b) Sheltered Workshop-Refer to appropriate standards section

BENNETT HAND TOOL COMPETITIVE NORM TABLE

SEC	% - COMP. X	SEC	% - COMP. X	SEC	% - COMP. X	SEC	% - COMP. X
400	100	600	75	800	50	1600	25
408	99	608	74	832	49	1680	24
416	98	616	73	864	48	1760	23
424	97	624	72	896	47	1840	22
432	96	632	71	928	46	1920	21
440	95	640	70	960	45	2000	20
448	94	648	69	992	44	2200	19
456	93	656	68	1024	43	2400	18
464	92	664	67	1056	42	2600	17
472	91	672	66	1088	41	2800	16
480	90	680	65	1120	40	3000	15
488	89	688	64	1152	39	3200	14
496	88	696	63	1184	38	3400	13
504	87	704	62	1216	37	3600	12
512	86	712	61	1248	36	3800	11
520	85	720	60	1280	35	4000	10
528	84	728	59	1312	34	4800	9
536	83	736	58	1344	33	5600	8
544	82	744	57	1376	32	6400	7
552	81	752	56	1408	31	7200	6
560	80	760	55	1440	30	8000	5
568	79	768	54	1472	29	10000	4
576	78	776	53	1504	28	13332	3
584	77	784	52	1536	27	20000	2
592	76	792	51	1568	26	40000	1

BENNETT HAND TOOL SHELTERED WORKSHOP STANDARD

SCORES (SEC.)	f
790 - 1134	2
1135 - 1479	7
1480 - 1824	1
1825 - 2169	2
2170 - 2514	2
2515 - 2859	0
2860 - 3204	1
3205 - 3549	0
3550 - 3894	0
3895 - 4239	1

N =16

Q_1 = 2170

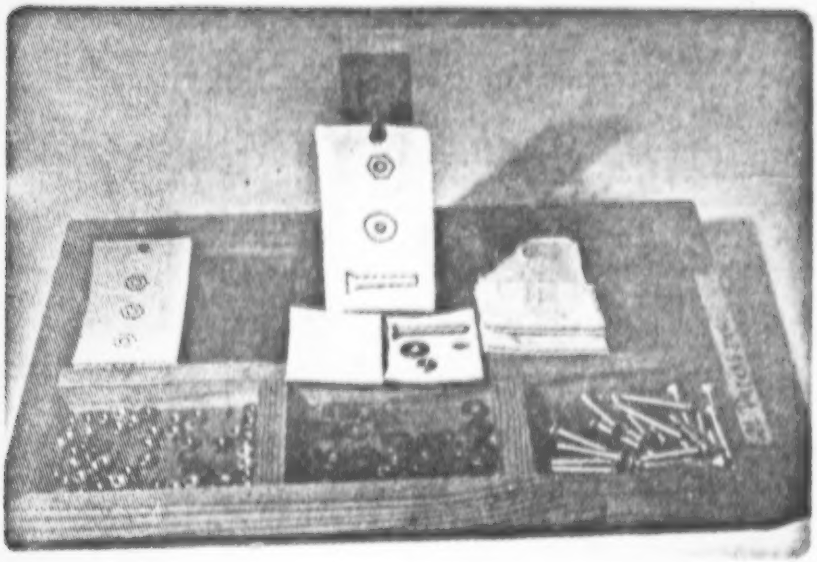
Q_2 = 1480 - 1/7 (345)
= 1480 - 49
= 1431

Q_3 = 1480 - 5/7 (345)
= 1480 - 246
= 1234

$\bar{X}$ = 1817
Median = 1431
Mode = 1308

Above Average = 0 - 1233
Average = 1234 - 2169
Below Average = 2170 +

#20 PACKAGING EXERCISE



1. Purpose: To evaluate and teach the ability to follow visual and verbal instructions for packaging small parts and to identify three dimensional object from two dimensional representations.

2. Materials:
   a) Optional size tray divided into 6 compartments.
   b) 4 dozen 1/4" x 2" bolts.
   c) 4 dozen 1/4" box head nuts.
   d) 4 dozen 1/4" washers.
   e) 10 library book envelopes 3-3/8" x 6-1/8".
   f) 10 guide cards with different combinations of nuts, washers, and bolts drawn on each card.

3. Instructions:
   This task is begun disassembled. The subject is instructed to pick up the first guide card and place it on the hook. The subject then is to gather the items shown into an envelope. The envelope is hung on the hook and the subject progresses to the next card. He progresses in this manner until all envelopes are filled to correspond to each guide card. Errors should be corrected during the practice period.

4. Major Evaluation Items:
   a) Placement of correct materials in envelopes
   b) Alternation of guide cards and envelopes
   c) Transfer from two to three dimensions

5. Time Standard:
   a) Competitive-Refer to appropriate standards section.
   b) Sheltered Workshop-Refer to appropriate standards section.

PACKAGING COMPETITIVE NORM TABLE

SEC	% - COMP. X	SEC	% - COMP. X	SEC	% - COMP. X	SEC	% - COMP. X
90	100	135	75	180	50	360	25
92	99	137	74	187	49	378	24
94	98	139	73	194	48	396	23
95	97	140	72	202	47	414	22
97	96	142	71	209	46	432	21
99	95	144	70	216	45	450	20
101	94	146	69	223	44	495	19
103	93	148	68	230	43	540	18
104	92	149	67	238	42	585	17
106	91	151	66	245	41	630	16
108	90	153	65	252	40	675	15
110	89	155	64	259	39	720	14
112	88	157	63	266	38	765	13
113	87	158	62	274	37	810	12
115	86	160	61	281	36	855	11
117	85	162	60	288	35	900	10
189	84	164	59	295	34	1080	9
121	83	166	58	302	33	1260	8
122	82	167	57	310	32	1440	7
124	81	169	56	317	31	1620	6
126	80	171	55	324	30	1800	5
128	79	173	54	331	29	2250	4
130	78	175	53	338	28	3000	3
131	77	176	52	346	27	4500	2
133	76	178	51	353	26	9000	1

PACKAGING EXERCISE SHELTERED WORKSHOP STANDARD

SCORES (SEC.)	f
50 - 104	2
105 - 159	3
160 - 214	10
215 - 269	2
270 - 324	7
325 - 379	6
380 - 434	1
435 - 489	4
490 - 544	3
545 - 599	1
600 - 654	1
655 - 709	1
710 - 764	0
765 - 819	0
820 - 874	1
875 - 929	1
	N = 43

N 25 = 10.75 (11)

N 75 = 3 (10.75) = 32.25 (32)

Q_1 = 490 - 3/4 (55)
= 490 - 41.25
= 449

Q_2 = 325 - 3/7 (55)
= 325 - 23.57
= 301

Q_3 = 215 - 410 (55)
= 215 - 22
= 193

SCORING (SEC.)

Above Average = 0 - 192
Average = 193 - 448
Below Average = 449+

$\overline{X}$ = 351
Median = 301
Mode = 188

PRE-SKILL EVALUATION

NAME　　　　　　　　　　DATE　　　　　　　　　　DATE

No.	EXERCISE NAME	PRE-TEST						POST-TEST				
		MAX.	E.T.	SEC.	STD.	%	S.WS	E.T.	SEC.	STD.	%	S.WS
*1.	Pounding Bench	N/A			N/A							
2.	Color & Size	N/A			N/A							
*3.	Pattern Duplication	N/A			N/A							
4.	Ring & Peg	10			123							
5.	Sized Dowel	5			64							
6.	Sorting #1	32			342							
7.	Sorting #2	45			606							
8.	Pin-Peg-Block	15			217							
9.	Pin-Dowel-Tree	8			71							
10.	Nut-Washer-Bolt	50			759							
1.	Sized Bolt	12			169							
12.	Block-Bolt-Assembly	20			300							
3.	Bi-Manual	35			480							
4.	Pin-Pop Rivet Board	75			1255							
15.	Screwdriver	50			619							
6.	Wrench Exercise	15			207							
17.	Eyebolt Assembly	52			774							
8.	Eyebolt Disassembly	25			405							
19.	Bennett Hand Tool	25			400							
0.	Packaging Exercise	8			90							

#1	#2	#3	#4
anual-Tool Extension Bi-Manual	Discrimination	Assembly	Tool-Usage
*1. Pounding Bench 4. Ring & Peg 13. Bi-Manual 14. Pin-Pop-Rivet	*2. Color & Size *3. Pattern Dupl. 5. Sized Dowel 6. Sort #1-1A 7. Sort #2-2A 21. Packaging	8. Pin-Peg-Block 9. Pin-Dowel-Tree 10. Nut-Washer-Bolt 11. Sized Bolt 12. Block-Bolt Asbly.	15. Screwdriver 16. Wrench Exer. 17. Eyebolt Asbly. 18. Eyebolt Disasbly. 19. Wrench Disasbly. 20. Wrench Asbly.
TD______ ______	STD______ ______	STD______ ______	STD______ ______

NOT TIMED

POWER BLOCKS

MIN. TO SEC. CONVERSION

MIN.	SEC.	MIN.	SEC.	MIN.	SEC.	MIN.	SEC.	MIN.	SEC.
1	60	26	1560	51	3060	76	4560	101	6060
2	120	27	1620	52	3120	77	4620	102	6120
3	180	28	1680	53	3180	78	4680	103	6180
4	240	29	1740	54	3240	79	4740	104	6240
5	300	30	1800	55	3300	80	4800	105	6300
6	360	31	1860	56	3360	81	4860	106	6360
7	420	32	1920	57	3420	82	4920	107	6420
8	480	33	1980	58	3480	83	4980	108	6480
9	540	34	2040	59	3540	84	5040	109	6540
10	600	35	2100	60	3600	85	5100	110	6600
11	660	36	2160	61	3660	86	5160	111	6660
12	720	37	2220	62	3720	87	5220	112	6720
13	780	38	2280	63	3780	88	5280	113	6780
14	840	39	2340	64	3840	89	5340	114	6840
15	900	40	2400	65	3900	90	5400	115	6900
16	960	41	2460	66	3960	91	5460	116	6960
17	1020	42	2520	67	4020	92	5520	117	7020
18	1080	43	2580	68	4080	93	5580	118	7080
19	1140	44	2640	69	4140	94	5640	119	7140
20	1200	45	2700	70	4200	95	5700	120	7200
21	1260	46	2760	71	4260	96	5760	121	7260
22	1320	47	2820	72	4320	97	5820	122	7320
23	1380	48	2880	73	4380	98	5880	123	7380
24	1440	49	2940	74	4440	99	5940	124	7440
25	1500	50	3000	75	4500	100	6000	125	7500

Section III - Job Samples:

The evaluation classroom is large enough to accomodate fifteen or more working students. Job samples are arranged on 3' x 8' x 28" collapsible tables with accompanying contoured fiberglass chairs. Standing job samples are located on 3' x 8' x 32" workbenches near the rear wall of the room. Immediately adjacent to these benches is the assembly line which is on a similar workbench and with which 36" high back chairs are used. Wide aisleways are maintained for movement of wheelchairs.

Completion times are monitored with a standard stop watch, or a clock with a sweep second hand. Times are recorded each day on the daily production form and at the end of each work period the times in minutes are converted to seconds (via the minutes to seconds conversion table at the end of this section) and recorded on the permanent individual production form which is kept in the student's file. The daily production and the individual production forms are also included at the end of this section.

Competitive and sheltered workshop standards are provided with each pre-skill.

The percentage of competitive standard is found by taking the student's converted score (to seconds) and finding the corresponding percentage (or closest to it) in the column immediately to the right of the "seconds" figure.

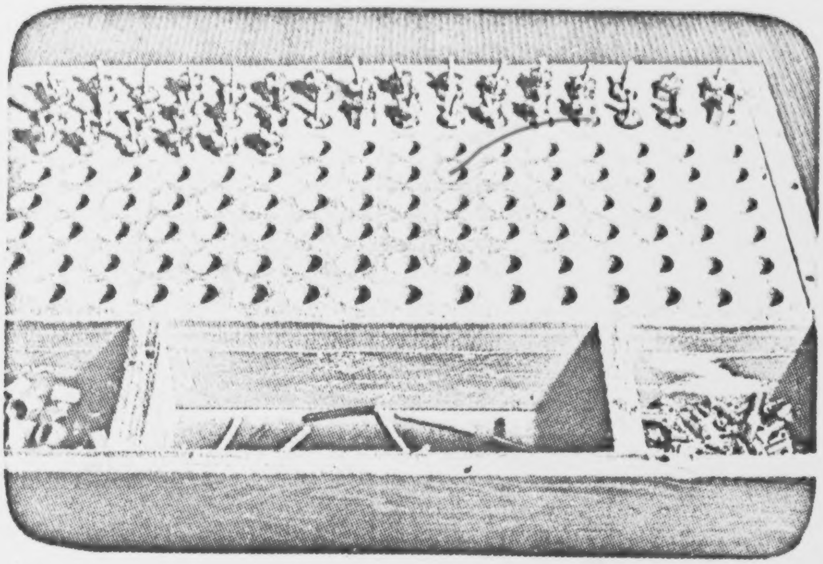
The competitive standards figure represents a percentage of the mean completion time (for that test) of a randomly selected norm group comprised of D.S.S. staff members. This group is represented by a broad age span (17-56), on equally diverse educational attainment, (second grade completion to M.D.) and the groups in most cases are half males and half females.

Since the student applying for a trainee level job in the community would normally be competing with members of such a diverse group, it is believed that this is a fairly representative group. (Also, he would probably be competing against "normal" applicants). An additional factor is naturally the ready accessibility of this group.

The student's peer group or sheltered workshop standard is found by reading the rating scale on the appropriate standards sheet which denotes the number of seconds within the three ranges of above average, average, and below average. The group into which he falls is his rank,relative to those students he works with. The mean, median, and mode are also included on this sheet for easy reference.

The norm group represented by the sheltered workshop standard is a random sample of all those students who have attended the center in the last two years. Every third student was selected from the list of completed evaluations and an average of his first and last attempt at task completion is used. Roughly half are males and half are females in each group.

CABLE CLAMP ASSEMBLY



1. Purpose:
   To measure or demonstrate such vocational skills as understanding and utilizing part to whole relationships, hand-eye coordination, fine fingering ability, manual dexterity, and repetitious small assembly.

2. Materials:
   a) 256 (128 pairs) - Cable clamp jaws, 5/32" Knurled I.D., Exterior: tapered thread 11/32" to 1/2" - 24 threads/inch, 5/8" hex-head clinch nut, 5/8" long.
   b) 128 cable clamp nuts, 7/16" - 24 thread inside, 5/8" hex nut outside, 3/4" long.
   c) 128-#14 rubber covered electrical wire, 3/16" diameter x 2" long.
   d) 1 cable clamp jig - upper part: 128 holes (3/4" diameter x 1" deep) 1-1/4" c to c. Lower part: 3 trays for (1) cable clamp jaws (2) cable clamp nuts (3) wire pieces. Board outside measurement: 16-1/2" x 22-1/8".

3. Instructions:
   This task is begun with the various pieces in the trays (jaws in right tray, wires in middle, and nuts in left hand tray). The student is to pick up a jaw and place it in his non-dominant hand with the flat face up. He then picks up a wire and places it in the groove on the flat (equal lengths extending past each end). A second jaw is then picked up and integrated with the first jaw in such a manner that the flat faces are together and the guide pins fit into the corresponding holes in each jaw. This

sub-assembly is then held by the nut end, a nut is picked up and screwed onto the threads until it is tight. The completed assembly is then placed in a hole in the jig (progression is from left to right), filling the first row, after which the student notifies the supervisor who starts timing at the beginning of the assembly of the first clamp for the second row. Progression is continued from left to right, filling all the remaining holes in the jig.

4. Major Evaluation Items:
   a) Placement of the wire on the first jaw as the second step (instead of pushing the wire in as the last step).
   b) Jaws are correctly mated.
   c) Nut is not cross threaded.
   d) Left to right progression is maintained.

5. Time Standard:
   1) Competitive-Refer to appropriate standards section.
   2) Sheltered Workshop-Refer to appropriate standards section.

CABLE CLAMPS COMPETITIVE NORM TABLE

SEC	% COMP. $\bar{X}$	SEC	% COMP. $\bar{X}$	SEC	% COMP. $\bar{X}$	SEC	% COMP. $\bar{X}$
1545	100	2318	75	3090	50	6180	25
1576	99	2348	74	3214	49	6489	24
1607	98	2379	73	3337	48	6798	23
1638	97	2410	72	3461	47	7107	22
1669	96	2441	71	3584	46	7416	21
1700	95	2472	70	3708	45	7725	20
1730	94	2503	69	3832	44	8498	19
1761	93	2534	68	3955	43	9270	18
1792	92	2565	67	4079	42	10043	17
1823	91	2596	66	4202	41	10815	16
1854	90	2627	65	4326	40	11588	15
1885	89	2657	64	4450	39	12360	14
1916	88	2688	63	4573	38	13133	13
1947	87	2719	62	4697	37	13905	12
1978	86	2750	61	4820	36	14678	11
2009	85	2781	60	4944	35	15450	10
2039	84	2811	59	5068	34	18540	9
2070	83	2843	58	5191	33	21630	8
2101	82	2874	57	5315	32	24720	7
2132	81	2905	56	5438	31	27810	6
2163	80	2936	55	5562	30	30900	5
2194	79	2966	54	5686	29	38625	4
2225	78	2997	53	5809	28	51449	3
2256	77	3028	52	5933	27	77250	2
2287	76	3059	51	6056	26	154500	1

CABLE CLAMPS SHELTERED WORKSHOP STANDARD

SCORES (SEC.)	f
1420 - 1790	2
1791 - 2161	2
2162 - 2532	2
2533 - 2903	3
2904 - 3274	1
3275 - 3645	4
3646 - 4016	2
4017 - 4387	6
4388 - 4758	0
4759 - 5129	1
5130 - 5500	1
5501 - 5871	2
5872 - 6242	0
6243 - 6613	0
6614 - 6984	1
	N =27

Q_1 = 4388 - 1/3 (370)
= 4388 - 122
= 4266

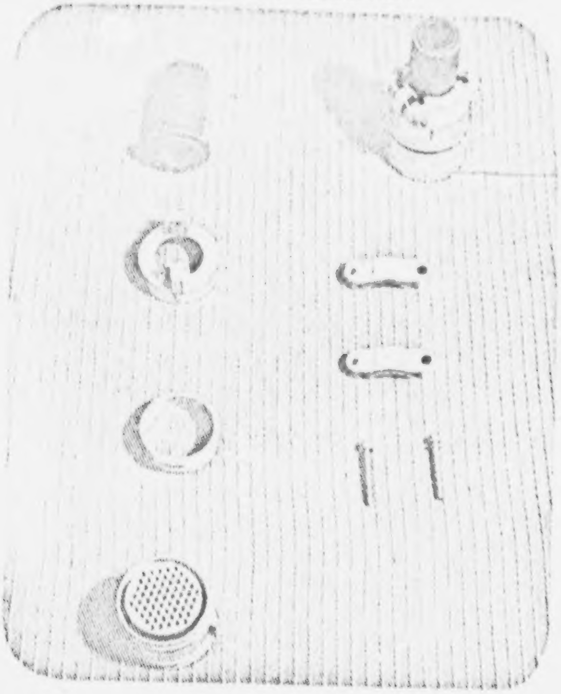
Q_2 = 3646 - 1/4 (370)
= 3646 - 93
= 3553

Q_3 = 3904 - 2/3 (370)
= 3904 - 247
= 3657

$\overline{X}$ = 3652
Median = 3553
Mode = 4152

Above Average = 0 - 3656
Average = 3657 - 4265
Below Average - 4266 +

COMPONENT ASSEMBLY



1. Purpose:
   To measure or demonstrate manual dexterity, fine fingering ability, gross fingering ability, small part alignment, part to whole relationships, repetitious and accurate small assembly, multi-level instruction following, and hand-eye coordination.

2. Materials:
   15 electronics plugs (Deutsch DS 09-61P-059) comprised of the following parts:
   a) 15 male plugs.
   b) 15 threaded rings.
   c) 15 back shells.
   d) 15 cable clamps (30 pcs.).
   e) 30-6-32 x 1" filister-head screws.
   f) 15 rubber cable reliefs.
   g) 7 open top boxes (cigar) 6" x 9" x 2" deep.

   Note: Pins are not used as they are too difficult to install and remove. These are available through a surplus supplier, retail electronics outlet, or from Deutsch Corporation.

3. Instructions:
   This task is begun with the pieces in the boxes. The test administrator first demonstrates the construction of the plug to the student thusly: He takes the plug in his non-dominant hand and screws the larger end of a threaded ring into the threaded portion of the plug until it is tight. He then slips a rubber cable relief into the hole on a back shell so that the flared portion of the relief is seated in the recessed back of the shell. Then the back shell is screwed onto the threads which are visible on the threaded ring.

A screw is placed into the larger holes on two (2) cable clamps from the convex side. With the plug sitting on its face on the table, the clamps are held horizontally and integrated with the back shell so that the screw fits thru the flanges on the shell and line up with the opposite threaded holes in the clamps. The screws are then tightened into each clamp until they are finger tight. They are then placed in the "completion" box.

4. Major Evaluation Items:
   a) Threaded ring is not cross threaded.
   b) Plug, threaded ring, and back shell are not over tightened.
   c) Screws are installed in the clamp from the correct side.
   d) The relief is inserted correctly.
   e) The screws are only finger tight and even.

5. Time Standard:
   a) Competitive-Refer to appropriate standards section.
   b) Sheltered Workshop-Refer to appropriate standards section.

COMPONENT ASSEMBLY COMPETITIVE NORM TABLE

SEC	% - COMP.X	SEC	% - COMP.X	SEC	% - COMP.X	SEC	% - COMP.X
851	100	1277	75	1702	50	3404	25
868	99	1294	74	1770	49	3574	24
885	98	1311	73	1838	48	3744	23
902	97	1328	72	1906	47	3915	22
919	96	1345	71	1974	46	4085	21
936	95	1362	70	2042	45	4255	20
953	94	1379	69	2111	44	4680	19
970	93	1396	68	2179	43	5106	18
987	92	1413	67	2247	42	5532	17
1004	91	1430	66	2315	41	5957	16
1021	90	1447	65	2383	40	6383	15
1038	89	1464	64	2451	39	6808	14
1055	88	1481	63	2519	38	7234	13
1072	87	1498	62	2587	37	7660	12
1089	86	1518	61	2655	36	8085	11
1106	85	1532	60	2723	35	8510	10
1123	84	1549	59	2791	34	10212	9
1140	83	1566	58	2859	33	11914	8
1157	82	1583	57	2927	32	13616	7
1174	81	1600	56	2996	31	15318	6
1191	80	1617	55	3064	30	17020	5
1208	79	1634	54	3132	29	21275	4
1225	78	1651	53	3200	28	28338	3
1243	77	1668	52	3268	27	42550	2
1260	76	1685	51	3336	26	85100	1

COMPONENT ASSEMBLY SHELTERED WORKSHOP STANDARD

SCORES (SEC.)	f
1040 - 1414	7
1415 - 1789	10
1790 - 2164	9
2165 - 2539	8
2540 - 2914	3
2915 - 3289	6
3290 - 3664	3
3665 - 4039	5
4040 - 4414	0
4415 - 4789	2
4790 - 5164	0
5165 - 5539	0
5540 - 5914	1
5915 - 6289	0
6290 - 6664	1

N = 55

Q_1 = 3290 - 1/3 (374)
= 3290 - 123
= 3167

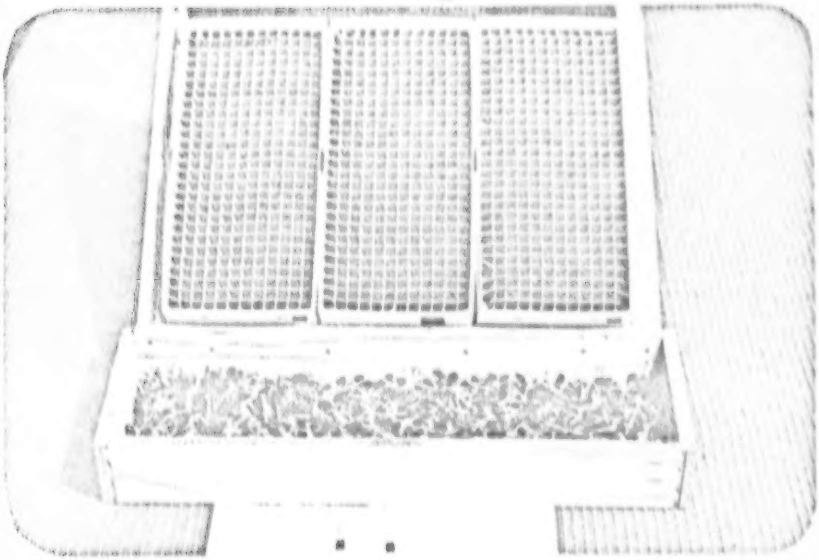
Q_2 = 2540 - 7/8 (374)
= 2540 - 327
= 2213

Q_3 = 1790 - 3/10 (374)
= 1790 - 112
= 1678

$\overline{X}$ = 2455
Median = 1213
Mode = 1602

Above Average = 0 - 1677
Average = 1678 - 3166
Below Average = 3167+

TRANSISTOR PACKAGING



1. Purpose:
   To measure or demonstrate such vocational skills as fine fingering ability, multi-level direction following, aiming, small part alignment, and hand-eye coordination.

2. Materials:
   a) 750 transistors (TO-18 case).
   b) 3 boxes with cardboard compartmentalized insert and cover.
   c) 1 jig, 15" wide x 6" high x 15" deep with the frame face at an angle of approximately 45°. Included is a tray for transistors. (See figure)

   Refer items "a" and "b" to Surplus Suppliers, Retail Electronic Outlets or Texas Instruments, Inc.

3. Instructions:
   This task is begun with the transistors in the jig tray and the tops off the boxes. Transistors are picked by the case and inserted (with lead down) into each of the compartments. The compartments around the edge of the boxes are left empty. Transistors are inserted starting with the second from top row (second hole) and installed from left to right. The task is continued in this manner until the box is completed at which time, the cover is installed, and the next box is started. The student proceeds in this manner until all 3 boxes are filled and all covers are installed.

4. Major Evaluation Items:
    a) Edge compartments are left empty.
    b) Procession is from left to right filling each hole.
    c) Box is filled on jig.
    d) Transistors are inserted correctly.
    e) Covers are installed after box completion.
    f) Transistors are rapidly and accurately placed.

5. Time Standards:
    Competitive-Refer to appropriate standards section.
    Sheltered Workshop-Refer to appropriate standards section.

TRANSISTOR PACK COMPETITIVE NORM TABLE

SEC	% COMP. $\bar{X}$	SEC	% COMP. $\bar{X}$	SEC	% COMP. $\bar{X}$	SEC	% COMP. $\bar{X}$
1741	100	2612	75	3482	50	6964	25
1776	99	2646	74	3621	49	7312	24
1811	98	2681	73	3761	48	7660	23
1846	97	2716	72	3900	47	8009	22
1880	96	2751	71	4039	46	8357	21
1915	95	2786	70	4178	45	8705	20
1950	94	2820	69	4318	44	9576	19
1985	93	2855	68	4457	43	10446	18
2020	92	2890	67	4596	42	11317	17
2054	91	2925	66	4736	41	12187	16
2089	90	2960	65	4875	40	13058	15
2124	89	2995	64	5014	39	13928	14
2159	88	3029	63	5153	38	14799	13
2194	87	3064	62	5293	37	15669	12
2229	86	3099	61	5432	36	16540	11
2263	85	3134	60	5571	35	17410	10
2298	84	3169	59	5711	34	20892	9
2333	83	3203	58	5850	33	24374	8
2368	82	3238	57	5989	32	27856	7
2403	81	3273	56	6128	31	31338	6
2437	80	3308	55	6268	30	34820	5
2472	79	3343	54	6407	29	43525	4
2507	78	3378	53	6546	28	57975	3
2542	77	3412	52	6685	27	87050	2
2577	76	3447	51	6825	26	174100	1

TRANSISTOR PACK SHELTERED WORKSHOP STANDARD

SCORES (SEC.)	f
2360 - 2739	2
2740 - 3119	3
3120 - 3499	8
3500 - 3879	6
3880 - 4259	11
4260 - 4639	5
4640 - 5019	5
5020 - 5399	1
5400 - 5779	1
5780 - 6159	1
6160 - 6539	2
6540 - 6919	4
6920 - 7299	0
7300 - 7679	0
7680 - 8059	1
	N =50

Q_1 = 5020 - 2/5 (380)
= 5020 - 152
= 4868

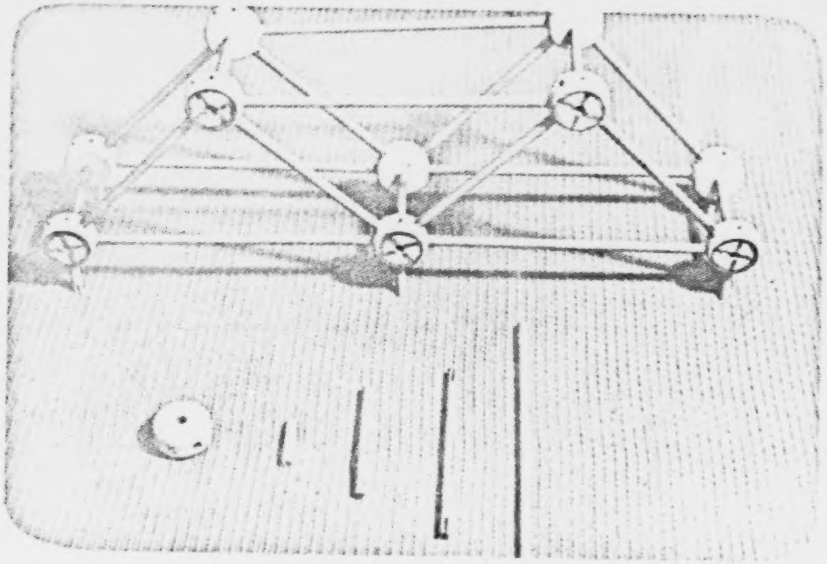
Q_2 = 4260 - 5/11 (380)
= 4260 - 172
= 4088

Q_3 = 3500 - 1/8 (379)
= 3500 - 47
= 3453

$\overline{X}$ = 4323
Median = 4088
Mode = 4070

Above Average = 0 - 3452
Average = 3453 - 4867
Below Average = 4868 +

TINKER-TOY BRIDGE



1. Purpose:
   To measure or demonstrate vocational skills such as pattern duplication; part to whole relationships; assembly from a complex model; color, size, and shape discrimination, and hand-eye coordination.

2. Materials:
   Standard tinker-toy materials:
   a) 6-¼" x 7 3/8" green rods.
   b) 8-¼" x 5" red rods.
   c) 5-¼" x 3 5/16" blue rods.
   d) 6-¼" x 1 5/16" orange rods.
   e) 10-1¼" spools.
   f) one complete model made from a set of parts identical to those listed above.
   g) one storage box.

3. Instructions:
   This task in begun with the parts to be assembled in the storage box and the model on the table in front of the subject. Instruct the student to make "one just like the model" from these parts (indicate).

4. Major Evaluation Items:
   a) Correct assembly
   b) Visual alignment of rods and spools
   c) Identification of pieces by color
   d) Rotational problems
   e) Rapid accurate alignment of pieces

5. Time Standard:
   - a) Competitive-Refer to appropriate standards section
   - b) Sheltered Workshop-Refer to appropriate standards section

TINKER TOY BRIDGE COMPETITIVE NORM TABLE

SEC	% COMP. $\bar{X}$	SEC	% COMP. $\bar{X}$	SEC	% COMP. $\bar{X}$	SEC	% COMP. $\bar{X}$
225	100	338	75	450	50	900	25
230	99	342	74	468	49	945	24
234	98	347	73	486	48	990	23
239	97	351	72	504	47	1035	22
243	96	356	71	522	46	1080	21
248	95	360	70	540	45	1125	20
252	94	365	69	558	44	1238	19
257	93	369	68	576	43	1350	18
261	92	374	67	594	42	1463	17
266	91	378	66	612	41	1575	16
270	90	383	65	630	40	1688	15
275	89	387	64	648	39	1800	14
279	88	392	63	666	38	1913	13
284	87	396	62	684	37	2025	12
288	86	401	61	702	36	2138	11
293	85	405	60	720	35	2250	10
297	84	410	59	738	34	2700	9
302	83	414	58	756	33	3150	8
306	82	419	57	774	32	3600	7
311	81	423	56	792	31	4050	6
315	80	428	55	810	30	4500	5
320	79	432	54	828	29	5625	4
324	78	437	53	846	28	7492	3
329	77	441	52	864	27	11250	2
333	76	446	51	882	26	22500	1

TINKER TOY BRIDGE SHELTERED WORKSHOP STANDARD

SCORES (SEC.)	f
450 - 651	4
652 - 853	2
854 - 1055	1
1056 - 1257	4
1258 - 1459	1
1460 - 1661	1
1662 - 1863	1
1864 - 2065	0
2066 - 2267	0
2268 - 2469	0
2470 - 2671	1
	N =15

Q_1 = 1258

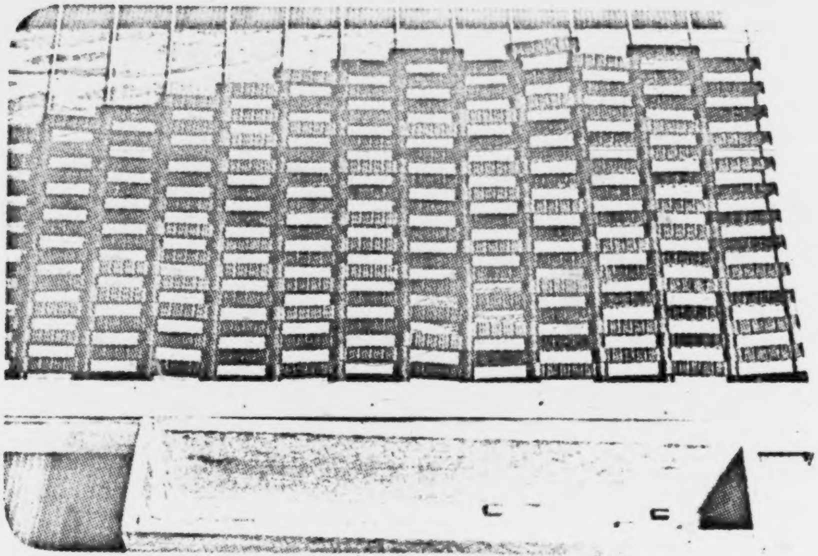
Q_2 = 1056

Q_3 = 652

$\overline{X}$ = 1077
Median = 1056
Bi-Modal = 551 & 1157

Above Average = 0 - 651
Average = 652 - 1257
Below Average = 1258 +

7-WIRE MAT



1. Purpose:
   To measure or demonstrate such vocational skills as range of motion, aiming, instructional sequence following, general manual dexterity, and hand-eye coordination.

2. Materials:
   a) 195 black rubber mat links - 2½" x ½" x ½".
   b) 28 red rubber spacers ½" O.D. x 1/8" I.D., x ½" long.
   c) 7 U-shaped wires #12-14 wire - 15½" long x 2" wide at base.
   d) 1 mat stand - approximately 28" wide x 15" high x 8" deep (See figure).

   Refer items a, b, and c to S & S Crafts, Colchester, Conn.

3. Instructions:
   This task is begun with the wires and red spacers in mat box, which is placed in front of mat stand. The supply box holding black mat links is placed on side of dominant hand within easy reach. Instruct the student to place a black link on each of the seven wires, threading the wire through the end holes on the links and slipping them to the bottom. Then place the wires on the stand with the open ends up. Place a red spacer on the outer ends of the end wires. Then place black links connecting the U-wire to one another. (See figure). Proceed in the same manner, placing black links over the open spots between links on the next lower level and placing red spacers between the black link ends on the end wires. This is continued until the height of the links is level with the top of the stand.

4. Major Evaluation Items:
   a) Black link alternate pattern is correct.
   b) Red spacers are correctly placed.
   c) There are seven wires.
   d) Construction is terminated when the level of black links is even with the top of the stand.

5. Time Standard:

   a) Competitive-Refer to appropriate standards section
   b) Sheltered Workshop-Refer to appropriate standards section

SEVEN WIRE MAT COMPETITIVE NORM TABLE

SEC	% COMP.$\bar{X}$	SEC	% COMP.$\bar{X}$	SEC	% COMP.$\bar{X}$	SEC	% COMP.$\bar{X}$
1131	100	1697	75	2262	50	4524	25
1154	99	1719	74	2353	49	4750	24
1176	98	1742	73	2443	48	4976	23
1199	97	1764	72	2533	47	5203	22
1221	96	1787	71	2624	46	5429	21
1244	95	1810	70	2714	45	5655	20
1267	94	1832	69	2805	44	6221	19
1289	93	1855	68	2895	43	6786	18
1312	92	1878	67	2986	42	7352	17
1335	91	1900	66	3076	41	7917	16
1357	90	1923	65	3167	40	8483	15
1380	89	1945	64	3257	39	9048	14
1402	88	1968	63	3348	38	9614	13
1425	87	1991	62	3438	37	10179	12
1448	86	2013	61	3529	36	10745	11
1470	85	2036	60	3619	35	11310	10
1493	84	2058	59	3710	34	13572	9
1516	83	2081	58	3800	33	15834	8
1538	82	2104	57	3891	32	18096	7
1561	81	2126	56	3981	31	20358	6
1583	80	2149	55	4072	30	22620	5
1606	79	2172	54	4162	29	28275	4
1629	78	2194	53	4253	28	37662	3
1651	77	2217	52	4343	27	56550	2
1674	76	2239	51	4434	26	113100	1

7-WIRE MAT SHELTERED WORKSHOP STANDARD

SCORES (SEC.)	f
1040-1479	3
1480 - 1919	12
1920 - 2359	7
2360 - 2799	7
2800 - 3239	4
3240 - 3679	2
3680 - 4119	0
4120 - 4559	3
4560 - 4999	1
5000 - 5439	0
5440 - 5879	1
5880 - 6319	0
6320 - 6759	0
6760 - 7199	0
7200 - 7639	1
	N =41

Q_1 = 3240 - 1/2 (439)
= 3240 - 220
= 3020

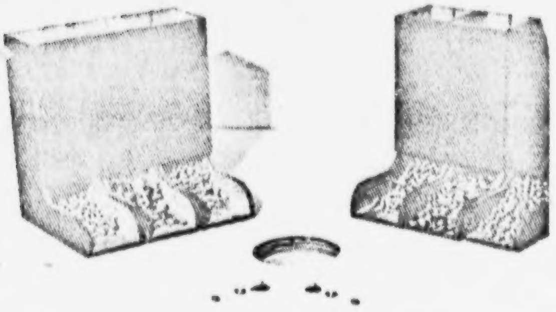
Q_2 = 2360 - 1/7 (439)
= 2360 - 63
= 2297

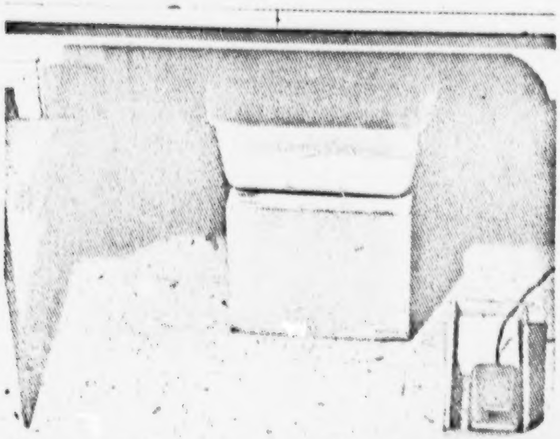
Q_3 = 1920 - 5/12 (439)
= 1920 - 183
= 1737

$\overline{X}$ = 2589
Median = 2297
Mode = 1700

Above Average = 0 - 1736
Average = 1737 - 3019
Below Average = 3020 +

TEK-FASTENER ASSEMBLY





1. Purpose:
   To measure or demonstrate such vocational skills as bi-manual dexterity, power machinery usage, repetitious small assembly, and hand-eye-foot coordination.

2. Materials:
   a) 1,000 - 1/4" hex-head sheet metal screw (3/8" head).
   b) 1,000 - 1/4" crown washers.
   c) 1,000 - 1/4" plastic grommets.
   d) 1 assembly jig (table) - mounted with two sewing machine motors extending thru holes in tables, 3/8" sockets are affixed to each shaft. Motors are operated via foot switch which is variable as a function of distance it is pushed down. Also supplied with funnel extending through table for parts.
   e) 6 parts bins (demand) - 4" x 4" x 8" deep.
   f) 1 plastic assembly bucket 12" x 12".
   g) A set of scales which will accurately weight up to 10 pounds in increments of one ounce.

   Refer items a, b, and c to Lanewood Industries; Dallas, Texas.

3. Instructions:
   This task is begun with the screws, washers, and grommets in the parts bins. Bins are arranged, three on each side of the sockets, with the screws in the two inner bins, the washers in the next two, and the grommets in the outer bins. The dominant foot is placed comfortably on the foot switch. The student is instructed to pick up a screw simultaneously with each hand and place them head down in the sockets. Then a crown washer is picked up

simultaneously with each hand and placed with the convex end, down against the screw head. At this point, a grommet is picked up with each hand at the same time and set down on the end of the screw. Holding the grommets, the foot switch is pressed (about half way down) and the grommets are screwed down tightly against the washer by the rotary action of the motors. The foot is then lifted off the switch, which stops the motors. The completed screw assembles are then picked up simultaneously and dropped into the assembly chute. The student proceeds in this manner until an hour has passed, at which time the Tek Fasteners are weighed for units/hour count.

4. Major Evaluation Items:
   a) Coordinate hand usage.
   b) Operation of foot switch with moderate pressure.
   c) Correct assembly sequence.
   d) Does not push grommets down manually.
   e) Holds onto grommets during motor operation.

5. Time Standard:
   a) Competitive-Refer to appropriate standards section.
   b) Sheltered Workshop-Refer to appropriate standards section.

TEK FASTENERS COMPETITIVE NORM TABLE

SEC.	% COMP. $\overline{X}$	SEC.	% COMP. $\overline{X}$	SEC.	% COMP. $\overline{X}$	SEC.	% COMP. $\overline{X}$
450	100	338	75	225	50	113	25
446	99	333	74	221	49	108	24
441	98	329	73	216	48	103	23
437	97	324	72	212	47	99	22
432	96	320	71	207	46	94	21
428	95	315	70	203	45	90	20
423	94	311	69	198	44	85	19
419	93	306	68	194	43	81	18
414	92	302	67	189	42	76	17
410	91	297	66	185	41	72	16
405	90	293	65	180	40	67	15
401	89	288	64	176	39	63	14
396	88	284	63	171	38	58	13
392	87	279	62	167	37	54	12
387	86	275	61	162	36	49	11
383	85	270	60	158	35	45	10
378	84	266	59	153	34	40	9
374	83	261	58	149	33	36	8
370	82	257	57	144	32	31	7
365	81	252	56	140	31	27	6
360	80	248	55	135	30	23	5
356	79	243	54	131	29	18	4
351	78	239	53	126	28	14	3
347	77	234	52	122	27	8	2
342	76	230	51	117	26	5	1

TEK FASTENER SHELTERED WORKSHOP STANDARD

SCORES (SEC.)	f
450 - 426	1
425 - 401	1
400 - 376	0
375 - 351	0
350 - 326	1
325 - 301	4
300 - 276	7
275 - 251	3
250 - 226	4
225 - 201	8
200 - 176	1
175 - 151	5
150 - 126	4
125 - 101	3
	N = 42

$$\begin{aligned} Q_1 &= 150 + 4/5\ (25) \\ &= 150 + 20 \\ &= 170 \end{aligned}$$

$Q_2 = 225$

$$\begin{aligned} Q_3 &= 275 + 4/7\ (25) \\ &= 275 + 14 \\ &= 289 \end{aligned}$$

$\overline{X} = 234$
Median = 225
Mode = 214

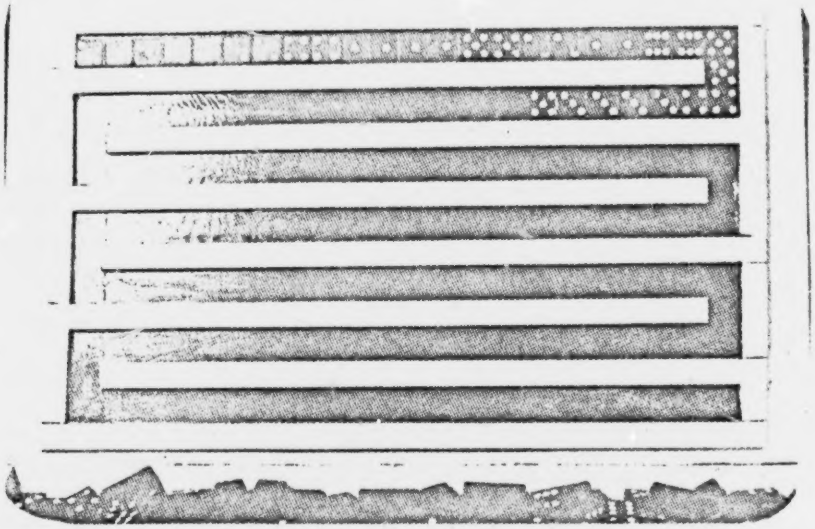
Above Average = 0 - 288
Average = 289 - 169
Below Average = 170 +

TEK FASTENERS

NUMERICAL EQUIVALENTS

WT.			WT.			WT.			WT.			WT.		
LB	OZ	NUM.	LB	OZ	NUM.	LB	OZ	NUM.	LB	OZ	NUM.	LB	OZ	NUM.
0	1	4	1	11	113	3	5	222	4	15	331	6	9	440
	2	8		12	117		6	226	5	0	335		10	444
	3	12		13	121		7	230		1	339		11	448
	4	16		14	125		8	234		2	344		12	452
	5	21		15	130		9	239		3	348		13	456
	6	25	2	0	134		10	243		4	352		14	460
	7	29		1	138		11	247		5	356		15	465
	8	33		2	143		12	251		6	360	7	0	469
	9	38		3	147		13	255		7	364		1	473
	10	42		4	151		14	259		8	368		2	478
	11	46		5	153		15	264		9	373		3	482
	12	50		6	159	4	0	268		10	377		4	486
	13	55		7	163		1	272		11	381		5	490
	14	59		8	167		2	277		12	385		6	494
	15	63		9	172		3	281		13	389		7	498
1	0	67		10	176		4	285		14	393		8	502
	1	71		11	180		5	289		15	398		9	507
	2	76		12	184		6	293	6	0	402		10	511
	3	80		13	188		7	297		1	406		11	515
	4	84		14	192		8	301		2	411		12	519
	5	88		15	197		9	306		3	415		13	523
	6	92	3	0	201		10	310		4	419		14	527
	7	96		1	205		11	314		5	423		15	532
	8	100		2	210		12	318		6	427	8	0	536
	9	105		3	214		13	322		7	431			
	10	109		4	218		14	326		8	435			

DOMINO MAZE



1. Purpose:
   To measure or demonstrate working skills such as pattern duplication, multi-level direction following, sequence following, range of motion, hand-eye coordination and gross fingering ability.

2. Materials:
   a) An inclined jig approximately 26" wide x 18" high x 14" deep at the base. Front face inclined approximately 30° (See figure). Equipped with a tray in front to hold dominoes.
   b) Four sets of standard dominoes (112).

3. Instructions:
   The task is begun with the dominoes in the front tray. The student is instructed to place a random domino flush against the left end of the uppermost groove of the maze. Then another domino is selected from the tray that has a pattern on one end which corresponds to the one on the right end of the first domino. The second domino is then placed next to the first one with the matching ends of the two together. He proceeds in this manner, matching the right end of the last domino placed with one end of the next one selected. Upon completing the first row, a domino is placed vertically between the first and second rows (see figure), making sure that the ends match. Then the second row is completed from right to left, matching ends as in the first row. This procedure is continued until the entire maze is filled.

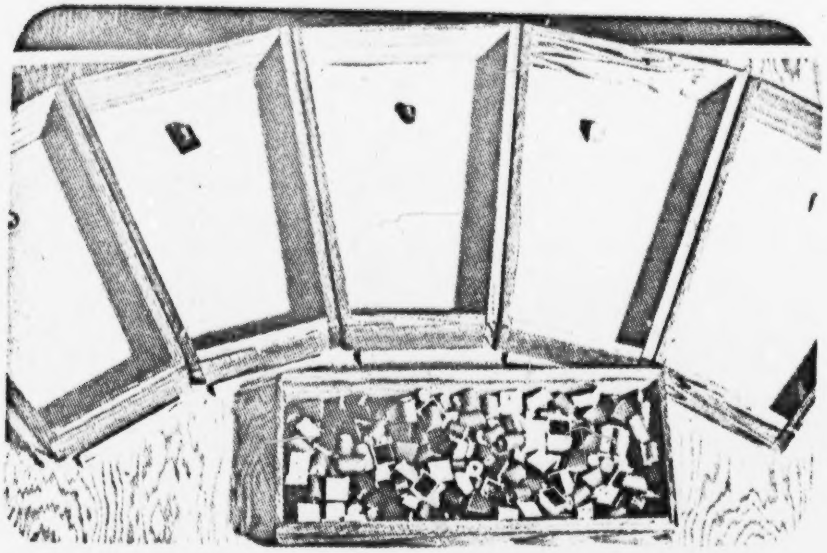
4. Major Evaluation Items:
   a) Pattern matching from unit to unit.
   b) End dominoes between rows are completed successfully.

5. Time Standard:
   a) Competitive-Refer to appropriate standards section
   b) Sheltered Workshop-Refer to appropriate standards section

DOMINO COMPETITIVE NORM TABLE

SEC	% COMP.$\bar{X}$	SEC	% COMP.$\bar{X}$	SEC	% COMP.$\bar{X}$	SEC	% COMP.$\bar{X}$
279	100	419	75	558	50	1116	25
285	99	424	74	580	49	1171	24
290	98	430	73	603	48	1228	23
296	97	435	72	625	47	1283	22
301	96	441	71	647	46	1339	21
307	95	446	70	670	47	1395	20
313	94	452	69	692	46	1535	19
318	93	458	68	714	45	1674	18
324	92	463	67	737	44	1814	17
329	91	469	66	759	43	1953	16
335	90	474	65	781	42	2093	15
340	89	480	64	804	41	2232	14
346	88	486	63	826	40	2372	13
352	87	491	62	848	39	2511	12
357	86	497	61	871	38	2651	11
363	85	502	60	893	37	2790	10
368	84	508	59	915	36	3348	9
374	83	513	58	937	35	3906	8
379	82	519	57	960	34	4464	7
385	81	525	56	982	33	5022	6
391	80	530	55	1004	32	5580	5
396	79	536	54	1027	31	6975	4
402	78	541	53	1049	30	9290	3
407	77	547	52	1071	29	13,950	2
413	76	552	51	1094	28	27,900	1

BUTTON SORT



1. Purpose:
   To measure or demonstrate such vocational skills as gross fingering ability, discrimination (by color, figure, or shape and/or combination of these), and hand-eye coordination.

2. Materials:
   a) 5 pounds of buttons (typewriter or adding machine keys), 800 units-each pound is of different type.
   b) 5 sorting trays - 8" x 12" x 2".
   c) 1 supply box - 12" x 5" x 2".
   d) 1 storage box - 12" x 10" x 5".
   e) 5 plastic or cloth sacks for weighing buttons.
   f) 1 set of scales which will weight one pound accurately with ± 1/2 ounce.

3. Instructions:
   This task is begun with the supply box filled with buttons. One of each type button is placed in each sorting tray. The student is asked to pick up a handful of buttons from the supply box and then place each button in one of the trays according to the sample button type. He is to continue in this manner until the supply box is empty. He then fills the supply box from the storage box. Again, he continues until both the supply and storage boxes are empty. After he has completed the sort, it is inspected for errors, each type is put into the bags, and reweighed.

4. Major Evaluation Items:
   a) Profusion of incorrect placement.
   b) Incorrect placements which may be caused by perceptual problems (confusing B, P, R. E; confusing yellow, orange, red, pink; etc.)

5. Time Standard:
   a) Competitive-Refer to appropriate standards section.
   b) Sheltered Workshop-Refer to appropriate standards section.

COLOR SORT COMPETITIVE NORM TABLE

SEC	% COMP. $\bar{X}$	SEC	% COMP. $\bar{X}$	SEC	% COMP. $\bar{X}$	SEC	% COMP. $\bar{X}$
1106	100	1659	75	2212	50	4424	25
1128	99	1681	74	2300	49	4645	24
1150	98	1703	73	2389	48	4866	23
1172	97	1725	72	2477	47	5088	22
1195	96	1748	71	2566	46	5309	21
1217	95	1770	70	2654	45	5530	20
1239	94	1792	69	2743	44	6083	19
1261	93	1814	68	2831	43	6636	18
1283	92	1836	67	2920	42	7189	17
1305	91	1858	66	3008	41	7742	16
1327	90	1880	65	3097	40	8295	15
1349	89	1902	64	3185	39	8848	14
1371	88	1924	63	3274	38	9401	13
1394	87	1947	62	3362	37	9954	12
1416	86	1969	61	3451	36	10507	11
1438	85	1991	60	3539	35	11060	10
1460	84	2013	59	3628	34	13272	9
1482	83	2035	58	3716	33	15484	8
1504	82	2057	57	3805	32	17696	7
1526	81	2079	56	3893	31	19908	6
1548	80	2101	55	3982	30	22120	5
1571	79	2124	54	4070	29	27650	4
1593	78	2146	53	4159	28	36830	3
1615	77	2168	52	4247	27	55300	2
1637	76	2190	51	4336	26	110600	1

COLOR SORT SHELTERED WORKSHOP STANDARD

SCORES (SEC.)	f
1560 - 2029	2
2030 - 2499	2
2500 - 2969	2
2970 - 3439	4
3440 - 3909	3
3910 - 4379	1
4380 - 4849	0
4850 - 5319	2
5320 - 5789	0
5790 - 6259	0
6260 - 6729	0
6730 - 7199	2
7200 - 7670	1

N =19

Q_1 = 4850

Q_2 = 3440 - 1/4 (469)
= 3440 - 117
= 3557

Q_3 = 2970 - 1/2 (469)
= 2970 - 235
= 2735

$\overline{X}$ = 4045
Median = 3557
Mode = 3205

Above Average = 0 - 2734
Average = 2735 - 4849
Below Average = 4850 +

SHAPE SORT COMPETITIVE NORM TABLE

SEC	% COMP. $\bar{X}$	SEC	% COMP. $\bar{X}$	SEC	% COMP. $\bar{X}$	SEC	% COMP. $\bar{X}$
812	100	1218	75	1624	50	3248	25
828	99	1234	74	1689	49	3410	24
845	98	1251	73	1754	48	3573	23
861	97	1267	72	1819	47	3735	22
877	96	1283	71	1884	46	3898	21
893	95	1299	70	1949	45	4060	20
909	94	1315	69	2014	44	4466	19
927	93	1332	68	2079	43	4872	18
942	92	1348	67	2144	42	5278	17
958	91	1364	66	2209	41	5684	16
974	90	1380	65	2274	40	6090	15
991	89	1397	64	2339	39	6496	14
1007	88	1413	63	2404	38	6902	13
1023	87	1429	62	2469	37	7308	12
1039	86	1445	61	2533	36	7714	11
1056	85	1462	60	2598	35	8120	10
1072	84	1478	59	2663	34	9744	9
1088	83	1494	58	2728	33	11368	8
1104	82	1510	57	2793	32	12992	7
1121	81	1527	56	2858	31	14616	6
1137	80	1543	55	2923	30	16240	5
1153	79	1560	54	2988	29	20300	4
1169	78	1575	53	3053	28	27040	3
1186	77	1592	52	3118	27	40600	2
1202	76	1608	51	3183	26	81200	1

SHAPE SORT SHELTERED WORKSHOP STANDARD

SCORES (SEC.)	f
900 - 1414	1
1415 - 1929	1
1930 - 2444	4
2445 - 2959	4
2960 - 3474	5
3475 - 3989	3
3990 - 4504	2
4505 - 5019	1
5020 - 5534	0
5535 - 6049	0
6050 - 6564	0
6565 - 7079	0
7080 - 7594	1

N =22

Q_1 = 3990 - 2/3 (515)
= 3990 - 343
= 3647

Q_2 = 3475 - 4/5 (515)
= 3475 - 412
= 3063

Q_3 = 2445 - 1/4 (515)
= 2445 - 129
= 2316

$\overline{X}$ = 3166
Median = 3063
Mode = 3226

Above Average = 0 - 2315
Average = 2316 - 3646
Below Average = 3647+

FIGURE SORT COMPETITIVE NORM TABLE

SEC	% COMP. $\bar{X}$	SEC	% COMP. $\bar{X}$	SEC	% COMP. $\bar{X}$	SEC	% COMP. $\bar{X}$
1542	100	2313	75	3084	50	6168	25
1573	99	2344	74	3207	49	6476	24
1604	98	2375	73	3331	48	6785	23
1635	97	2406	72	3454	47	7093	22
1665	96	2436	71	3577	46	7402	21
1696	95	2467	70	3701	45	7710	20
1727	94	2498	69	3824	44	8481	19
1758	93	2529	68	3948	43	9252	18
1789	92	2560	67	4071	42	10023	17
1820	91	2591	66	4194	41	10794	16
1850	90	2621	65	4318	40	11565	15
1881	89	2652	64	4441	39	12336	14
1912	88	2683	63	4564	38	13107	13
1943	87	2714	62	4688	37	13878	12
1974	86	2745	61	4811	36	14649	11
2005	85	2776	60	4934	35	15420	10
2035	84	2806	59	5058	34	18504	9
2066	83	2837	58	5181	33	21588	8
2097	82	2868	57	5305	32	24672	7
2128	81	2899	56	5428	31	27756	6
2159	80	2930	55	5551	30	30840	5
2190	79	2961	54	5675	29	38550	4
2220	78	2991	53	5798	28	51349	3
2251	77	3022	52	5921	27	77100	2
2282	76	3053	51	6045	26	154200	1

FIGURE SORT SHELTERED WORKSHOP STANDARD

SCORES (SEC.)	f
2160 - 2595	2
2596 - 3031	4
3032 - 3467	4
3468 - 3903	6
3904 - 4339	3
4340 - 4775	0
4776 - 5211	0
5212 - 5647	4
5648 - 6083	1
6084 - 6519	1
6520 - 6955	0
6956 - 7391	2

N =27

Q_1 = 5648 - 3/4 (435)
= 5648 - 326
= 5322

Q_2 = 3904 - 1/2 (435)
= 3904 - 218
= 3686

Q_3 = 3468 - 3/4 (435)
= 3468 - 326
= 3142

$\overline{X}$ = 4126
Median = 3686
Mode = 3686

Above Average = 0 - 3141
Average = 3142 - 5321
Below Average = 5322+

FIGURE & SHAPE COMPETITIVE NORM TABLE

SEC	% COMP. $\overline{X}$	SEC	% COMP. $\overline{X}$	SEC	% COMP. $\overline{X}$	SEC	% COMP. $\overline{X}$
1174	100	1761	75	2348	50	4696	25
1198	99	1785	74	2442	49	4931	24
1221	98	1808	73	2536	48	5166	23
1244	97	1831	72	2630	47	5400	22
1268	96	1855	71	2724	46	5635	21
1291	95	1878	70	2818	45	5870	20
1315	94	1902	69	2912	44	6457	19
1338	93	1925	68	3005	43	7044	18
1362	92	1949	67	3099	42	7631	17
1385	91	1972	66	3193	41	8218	16
1409	90	1996	65	3287	40	8805	15
1432	89	2019	64	3381	39	9392	14
1456	88	2043	63	3475	38	9979	13
1479	87	2066	62	3569	37	10566	12
1503	86	2090	61	3663	36	11153	11
1526	85	2113	60	3757	35	11740	10
1550	84	2137	59	3851	34	14088	9
1573	83	2160	58	3945	33	16436	8
1597	82	2184	57	4039	32	18784	7
1620	81	2207	56	4133	31	21132	6
1644	80	2231	55	4226	30	23480	5
1667	79	2254	54	4320	29	29350	4
1691	78	2278	53	4414	28	39094	3
1714	77	2301	52	4508	27	58700	2
1738	76	2325	51	4602	26	117400	1

FIGURE-SHAPE-SORT SHELTERED WORKSHOP STANDARD

SCORES (SEC.)	f
1740 - 2284	2
2285 - 2829	5
2830 - 3374	7
3375 - 3919	3
3920 - 4464	4
4465 - 5009	3
5010 - 5554	1
5555 - 6099	2
6100 - 6644	1
6645 - 7189	0
7190 - 7734	1
7735 - 8279	1
8280 - 8824	1
8825 - 9369	0
9370 - 9914	1

N = 32

Q_1 = 5010

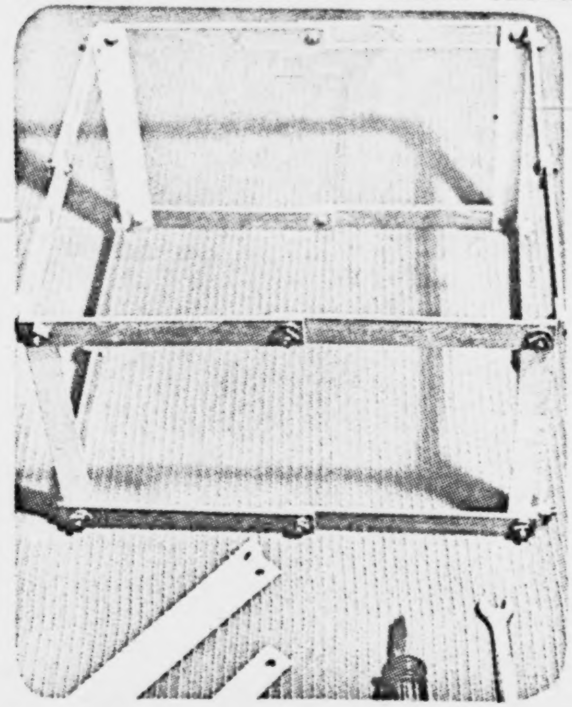
Q_2 = 3920 - 1/3 (544)
= 3920 - 180
= 3740

Q_3 = 3375 - 6/7 (544)
= 3375 - 466
= 2909

$\overline{X}$ = 4294
Median = 3740
Mode = 3102

Above Average = 0 - 2908
Average = 2909 - 5009
Below Average = 5010 +

BOX DESIGN #1 SHELTERED WORKSHOP STANDARD



1. **Purpose:**
   To measure or demonstrate such vocational skills as fine fingering ability, conceptualization, part to whole relationships, hand-eye coordination, small tool usage, attention to fine detail, and frustration tolerance.

2. **Materials:**
   a) 16 mending plates, 16 ga. 3/4" x 6" w/2 3/16" holes located on center line, measuring 5-1/4" C to C.
   b) 4 angle brackets, 16 ga., 7" in length w/3/4" flanges, two 3/16" holes located on each flange center line, measuring 6-1/4" C to C.
   c) 24 round head stove bolts 3/16" x 1/2".
   d) 24-3/16" square nuts.
   e) 24-3/16" flat washers.
   f) 1 assembled model from a set of parts as listed above.
   g) 1 tray for parts.
   h) 1-9/64" stubly slot screwdriver.
   i) 1-3/8" x 7/16" open end wrench.

3. **Instructions:**
   This task is begun with the parts in the tray (disassembled). The student is asked to "make one just like the model" from the parts (indicate). Emphasize that he (she) should exercise extreme care in duplicating the detail of the box.

4. Major Evaluation Items:
   a) Screws are inserted from correct side.
   b) Washers are on correct side of plate.
   c) Straps are on correct side of angle.
   d) Strap to strap orientation is correct.
   e) Ability to manipulate nuts, screws, and washers.
   f) Correct use of tools.
   g) Tightness of screws.
   h) Any manifestations of frustration.

5. Time Standard:
   a) Competitive-Refer to appropriate standards section.
   b) Sheltered Workshop-Refer to appropriate standards section.

BOX I COMPETITIVE NORM TABLE

SEC	% COMP.$\bar{X}$	SEC	% COMP.$\bar{X}$	SEC	% COMP.$\bar{X}$	SEC	% COMP.$\bar{X}$
1149	100	1724	75	2298	50	4596	25
1172	99	1747	74	2390	49	4826	24
1195	98	1769	73	2482	48	5056	23
1218	97	1792	72	2574	47	5285	22
1241	96	1815	71	2666	46	5515	21
1264	95	1838	70	2758	45	5745	20
1287	94	1861	69	2850	44	6320	19
1310	93	1884	68	2941	43	6894	18
1333	92	1907	67	3033	42	7469	17
1356	91	1930	66	3125	41	8043	16
1379	90	1953	65	3217	40	8618	15
1402	89	1976	64	3309	39	9192	14
1425	88	1999	63	3401	38	9767	13
1448	87	2022	62	3493	37	10341	12
1471	86	2045	61	3585	36	10916	11
1494	85	2068	60	3677	35	11490	10
1517	84	2091	59	3769	34	13788	9
1540	83	2114	58	3861	33	16086	8
1563	82	2137	57	3953	32	18384	7
1586	81	2160	56	4045	31	20682	6
1609	80	2183	55	4136	30	22980	5
1632	79	2206	54	4228	29	28725	4
1655	78	2229	53	4320	28	38262	3
1678	77	2252	52	4412	27	57450	2
1701	76	2275	51	4504	26	114900	1

BOX I SHELTERED WORKSHOP STANDARD

SCORES (SEC.)	f
925 - 1374	1
1375 - 1824	0
1825 - 2274	0
2275 - 2724	0
2725 - 3174	7
3175 - 3624	4
3625 - 4074	5
4075 - 4524	2
4525 - 4974	3
4975 - 5424	4
5425 - 5874	3
5875 - 6324	1
6325 - 6774	1
6775 - 7224	0
7225 - 7674	1
	N = 32

Q_1 = 5425 - 2/4 (450)
= 5425 - 225
= 5200

Q_2 = 4075 - 1/5 (450)
= 4075 - 90
= 3985

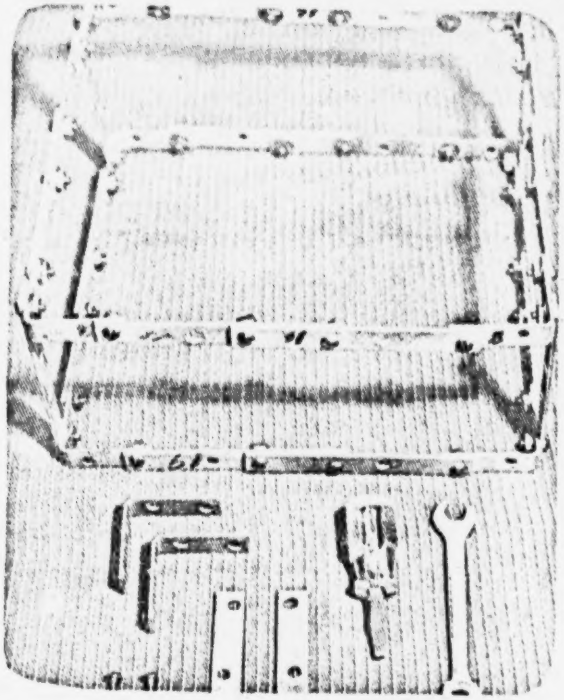
Q_3 = 3175

$\overline{X}$ = 4223
Median = 3850
Mode = 2950

SCORING (SEC.)

Above Average = 0 - 3174
Average = 3175 - 5199
Below Average = 5200+

BOX DESIGN #2 SHELTERED WORKSHOP STANDARD



1. Purpose:
To measure or demonstrate such vocational skills as fine fingering ability, hand-eye coordination, and small tool usage. Also included are conceptualization, part to whole relationships, attention to fine detail, and frustration tolerance to a much higher degree than on Box Design #1.

2. Materials:
   - a) 16 mending plates, 16 ga. 5/8" x 5" w/4-1/4" counter sunk holes spaced alternately 1/16" from each side of the center line, end holes 4 3/8" C to C, inner holes 1-1/16" C to C.
   - b) 8 right angle brackets, 16 ga. 5/8" w/2-2 1/16" flanges on each side of the right angle bend. 4 holes located as follows: two on each flange alternately 1/16" from the flange center line, 1 hole 5/16" from the end of the flange and the other 1-1/2" from the end.
   - c) 40-3/16" x 1/2" round head slot head stove bolts.
   - d) 40-3/16" square nuts.
   - e) 1 assembled model from a set of parts as listed above.
   - f) 1 tray for parts.
   - g) 1-9/64" stubly slot screwdriver.
   - h) 1-3/8" x 7/16" open end wrench.

3. Instructions:
This task is begun with the parts in the tray (disassembled). The student is asked to "make one just like the model" from the parts (indicate). Emphasize that he (she) should exercise extreme care in duplicating the detail of the box.

4. Major Evaluation Items:
   - a) Screws are inserted from the correct side.
   - b) Washers are on the correct side of the plate.
   - c) Straps are on the correct side of the angle brackets.
   - d) Strap to strap orientation is correct.
   - e) Ability to manipulate nuts, screws, and washers.
   - f) Correct use of tools.
   - g) All screws are tight.
   - h) Any manifestations of frustration.

5. Time Standard:
   - a) Competitive-Refer to appropriate standards section.
   - b) Sheltered Workshop-Refer to appropriate standards section.

BOX II COMPETITIVE NORM TABLE

SEC	% COMP. $\bar{X}$	SEC	% COMP. $\bar{X}$	SEC	% COMP. $\bar{X}$	SEC	% COMP. $\bar{X}$
1666	100	2499	75	3332	50	6664	25
1699	99	2532	74	3465	49	6997	24
1733	98	2566	73	3599	48	7330	23
1766	97	2599	72	3732	47	7664	22
1799	96	2632	71	3865	46	7997	21
1833	95	2666	70	3998	45	8330	20
1866	94	2699	69	4132	44	9163	19
1899	93	2732	68	4265	43	9996	18
1933	92	2766	67	4398	42	10829	17
1966	91	2799	66	4532	41	11662	16
1999	90	2832	65	4665	40	12495	15
2033	89	2866	64	4798	39	13280	14
2066	88	2899	63	4931	38	14161	13
2099	87	2932	62	5065	37	14994	12
2133	86	2966	61	5199	36	15827	11
2166	85	2999	60	5331	35	16660	10
2199	84	3032	59	5465	34	19992	9
2232	83	3065	58	5598	33	23324	8
2266	82	3099	57	5731	32	26656	7
2299	81	3132	56	5864	31	29988	6
2332	80	3165	55	5998	30	33320	5
2366	79	3199	54	6131	29	41650	4
2399	78	3232	53	6264	28	55478	3
2432	77	3265	52	6397	27	83300	2
2466	74	3299	51	6531	26	166600	1

BOX II SHELTERED WORKSHOP STANDARD

SCORES (SEC.)	f
3780 - 4229	5
4230 - 4679	2
4680 - 5129	0
5130 - 5579	2
5580 - 6029	0
6030 - 6479	1
6480 - 6929	1
6930 - 7379	1
7380 - 7829	1
7830 - 8280	1

N = 14

Q_1 = 6480

Q_2 = 5130

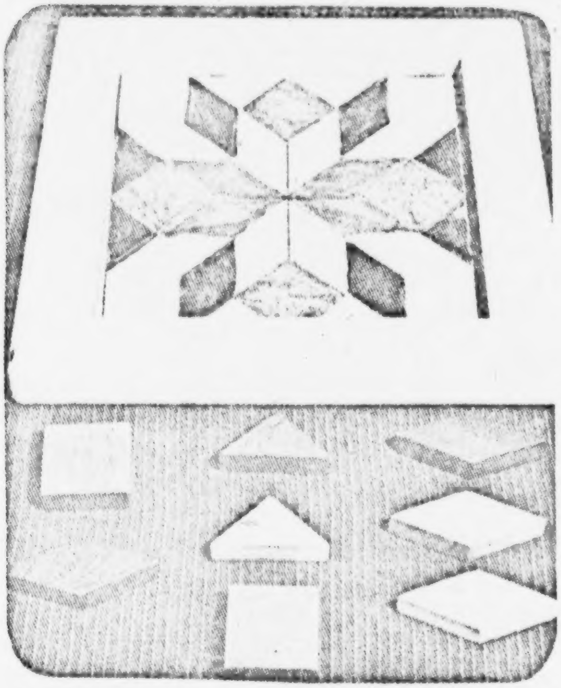
Q_3 = 4230 - 2/5 (450)
= 4230 - 180
= 4050

$\overline{X}$ = 5405
Median = 4905
Mode = 4005

SCORING (SEC.)

Above Average = 0 - 4049
Average = 4050-6479
Below Average = 6480+

PARQUETRY BLOCKS



1. Purpose:
   To measure or demonstrate vocational skills such as color and shape discrimination, pattern duplication, eye-hand coordination and direction following.

2. Materials:
   a) 1 standard set of parquetry blocks (32) with patterns.
   b) Cardboard or wooden jig 13" x 13" (See Figure).

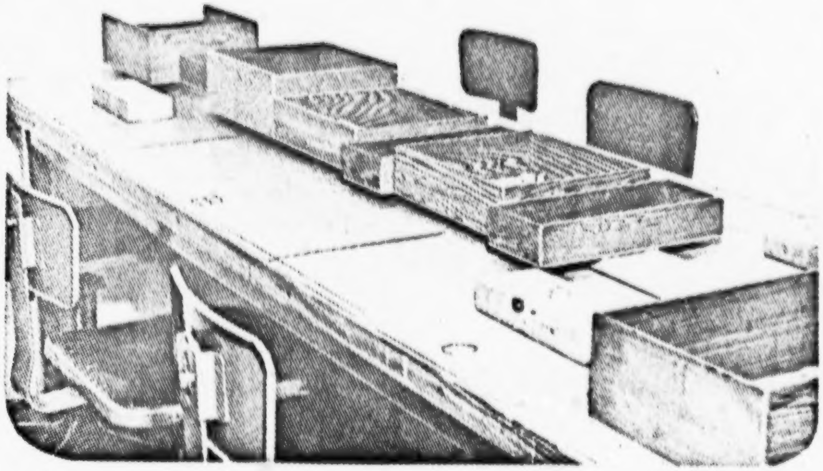
   Refer item "a" to C.C.M. School Materials, Inc.; Birmingham, Alabama

3. Instructions:
   This task is begun with the blocks removed from the jig and placed on the table beside it. A pattern card is placed in the jig and the student is instructed to place the various blocks on the card as they are represented by color and shape. He is to proceed in this manner until all the spaces are filled and the pattern is complete.

4. Major Evaluation Items:
   a) Incorrect color placement.
   b) Incorrect shape placement.
   c) Color reversals.
   d) Ability to fit blocks together accurately and rapidly.

5. Time Standard:
    a) Competitive-Refer to appropriate standards section
    b) Sheltered Workshop-Refer to appropriate standards section

PRODUCTION ASSEMBLY LINE



1. Purpose: To measure or demonstrate the ability to work in a cooperative group and the degree to which this group will compete with another like group. Additionally, such vocational skills as repetitious assembly ability, fine fingering, manual dexterity, and sequence of assembly are assessed.

2. Materials:
   a) General Items

      1) 6 small screwdrivers-1/8" x 6".
      2) 1 workbench w/parts and assembly trays attached (see figure).

   b) Plug Assembly

      1) 100 plug back shells
      2) 200 cable clamps-100 threaded, 100 non-threaded (1 each req'd for each assy.)
      3) 200 cable clamp screws (2 req'd for each assy.)
      4) 100 plugs
      5) 200 terminal, 100 nickel plated, 100 brass (2 req'd for each assy.)
      6) 200 self-tapping screws
      7) 6 assembly, one for each work station to hold sub-assemblies and assemblies during construction (constructed of 2 x 4 material, approx. 9" long).

The student at Station A selects a back shell, places it in his jig, slides in two cable clamps (1 threaded, 1 non-threaded) into the back of the plug, installs two cable clamp screws (one from each direction), and then tightens the screws with a screwdriver. He then places the completed unit in the first subassembly box.

The student at Station B selects a plug, inserts it into his jig, installs one brass and one nickel plated screw into their respectively colored terminal holes, and then tightens them with a screwdriver. He then places the completed unit in the second subassembly box and transfers any completed back shells from the first to the second subassembly box.

The student at Station C selects a completed back shell and plug subassembly fits them together and inserts them into his jig. He then places two self-tapping screws in the appropriate holes in the plug and tightens them down with a screwdriver. He then removes it from the jig, inspects it, and places it in the final assembly box if it passes inspection. If it does not, he passes it back down the line for re-work.

b. Connector Assembly

This task is begun with the connectors disassembled with the parts in the parts boxes at the appropriate stations. (Connector bodies, cable clamps, and lock washers at Station A, flat metal washers, rubber washers and jam nuts at Station B, and hose pieces at Station C.)

The student at Station A selects a connector body and inserts it into his jig. He then takes two screws, installs lock washers on them and then inserts the two screws into a single cable clamp from its convex side. He then screws the screws into the threaded portion of the connector body. He continues to screw the screws in (by hand) until they emerge from the back of the connector body at which time he removes the subassembly from his jig and places it in the first subassembly box.

The student in Station B selects a connector subassembly and slides on first, a metal washer then a rubber washer on the threaded end of the connector body, then a jam nut (flared end toward the washers) is screwed on about 3 threads and then the subassembly is placed in the second subassembly box.

The student in Station C selects a connector from the second subassembly box, screws down the jam nut (by hand) until it is tight and then inserts it into his jig. He then selects a piece of hose, inserts it into the cable clamp, and then tightens the cable clamp screws until the hose piece is held firmly. He then removes the assembly from the jig, inspects it, and places it in the final assembly box.

c) Connector Assembly

1) 200 connector bodies
2) 200 cable clamps
3) 400 cable clamp screws (2 req'd for each assy.)
4) 200 connector jam nuts
5) 200 lock washers, 3/16"
6) 200 pcs. garden hose, 1/2 I.D., 3/4" O.D., 2 1/2" long
7) 200 flat metal washers, 1 1/32" I.D., 1 1/2" O.D.
8) 200 slip joint washer, rubber, 1 1/4" x 1 1/4"
9) 4 assembly jigs for the 1st and 3rd work stations to hold subassemblies and assemblies during construction (constructed of 2" x 4" material approx. 9" long.)

Refer item a. 1. and b. 1-6 to Allied Electronics
100 N. Western
Chicago, Ill. 60680

(a. 1 = Xcelite P/R R-18455
b. 1-6 is a complete assembly
Hubell #7428)

Refer item c, 1-5 to Allan Stevens
Conduit Fitting Corp.
Woodside, N.Y.
(P/N 302)

Refer item c, 7 to G.L. Huyell
Mineapolis, Kansas
(Mild Steel Machine Bushing)

Refer item c. 8 to Scotsman Specialities
P/N 1210

3. Instructions:
The assembly line may be operated with either the plugs or the connectors. The plugs require a higher degree of fine detail work than the connectors and therefore, the latter will probably be more easily performed by lower level MR's than the former. This task utilizes six students at a time, three on each side. The three on a side comprises a team.

a) Plug Assembly
This task is begun with the plugs disassembled with the parts in the parts boxes at the appropriate stations (back shells, cable clamps, and cable clamp screws at Station A; plugs and terminal screws at Station B, and self tapping screws at Station C.)

4. Major Evaluation Items:
   a) Cable clamp screws are tightened equally.
   b) Hose piece is held firmly in the cable clamp.
   c) Flat metal washer is placed on before the rubber washer.
   d) Jam nut is just hand tight.
   e) Lock washer is on correct side of cable clamp.
   f) Jam nut on correctly.
   g) Cooperation within each group.
   h) Competition between the two groups.
   i) Correct use of screwdriver.

5. Time Standard:
   a) Competitive-Refer to appropriate standards section.
   b) Sheltered Workshop-Refer to appropriate standards section.

DATE **BOX DESIGN #1** TIME ________

NORM TABLE ________

1. Attn. to fine detail -
2. Use of tools-screwdriver & wrench -
3. Part to whole relationships -
4. Ability to assemble from complex model -
5. Frustration tolerance

DATE **BOX DESIGN #2** TIME ________

NORM TABLE ________

1. Attn. to fine detail -
2. Use of tools-screwdriver & wrench -
3. Part to whole relationships -
4. Ability to assemble from complex model -
5. Frustration tolerance

DATE **7-WIRE MAT PRODUCTION** TIME ___________

NORM TABLE ___________

1. Instructional sequence following
2. Aiming
3. Following of visual instructions
4. Manual dexterity
5. Hand-eye coordination

St. 7W

Plus:
Long period standing ability

DATE **BUTTON INSPECTION & DISCRIMINATION PRODUCTION** TIME ___________

NORM TABLE ___________

1. Shape, figure, and/or color discrimination
2. Manual dexterity

DATE SEMI-AUTOMATED SHEET METAL SCREW ASSEMBLY TIME ___________

NORM TABLE ___________

1. Bi-manual dexterity
2. Power machinery usage
3. Repetitious small assy.
4. Hand-eye-foot coordination

DATE TRANSISTOR PACKAGING OPERATION TIME ___________

NORM TABLE ___________

1. Fine fingering dexterity
2. Multi-level direction following
3. Small part alignment
4. Hand-eye coordination

DATE COMPONENT ASSEMBLY TIME ____________

NORM TABLE ____________

1. Repetitious and accurate small assy.
2. Alignment of small parts
3. Multi-level instruction following
4. Hand-eye coordination

DATE PLUG ASSEMBLY LINE PRODUCTION TIME ____________

NORM TABLE ____________

1. Competition & cooperation
2. Use of tools-screwdriver
3. Repetitious and accurate assembly
4. Alignment of complex small parts

DATE

CABLE CLAMP ASSEMBLY

TIME ____________

NORM TABLE ____________

1. Hand-eye coordination
2. Accurate & repetitious small assy.
3. Alignment of small part
4. Instruction following
5. Physical endurance-standing

DATE	CODE	TIME SEC/UNITS	COMMENTS	DATE	CODE	TIME SEC/UNITS	COMMENTS

INDIVIDUAL PRODUCTION RECORD NAME ____________________

PRODUCTION RECORD

DATE____________________

A.M.____________ P.M.____________

NAME	CODE	IN	OUT	TOTAL TIME	COMMENTS

MIN. TO SEC. CONVERSION

MIN.	SEC.	MIN.	SEC.	MIN.	SEC.	MIN.	SEC.	MIN.	SEC.
1	60	26	1560	51	3060	76	4560	101	6060
2	120	27	1620	52	3120	77	4620	102	6120
3	180	28	1680	53	3180	78	4680	103	6180
4	240	29	1740	54	3240	79	4740	104	6240
5	300	30	1800	55	3300	80	4800	105	6300
6	360	31	1860	56	3360	81	4860	106	6360
7	420	32	1920	57	3420	82	4920	107	6420
8	480	33	1980	58	3480	83	4980	108	6480
9	540	34	2040	59	3540	84	5040	109	6540
10	600	35	2100	60	3600	85	5100	110	6600
11	660	36	2160	61	3660	86	5160	111	6660
12	720	37	2220	62	3720	87	5220	112	6720
13	780	38	2280	63	3780	88	5280	113	6780
14	840	39	2340	64	3840	89	5340	114	6840
15	900	40	2400	65	3900	90	5400	115	6900
16	960	41	2460	66	3960	91	5460	116	6960
17	1020	42	2520	67	4020	92	5520	117	7020
18	1080	43	2580	68	4080	93	5580	118	7080
19	1140	44	2640	69	4140	94	5640	119	7140
20	1200	45	2700	70	4200	95	5700	120	7200
21	1260	46	2760	71	4260	96	5760	121	7260
22	1320	47	2820	72	4320	97	5820	122	7320
23	1380	48	2880	73	4380	98	5880	123	7380
24	1440	49	2940	74	4440	99	5940	124	7440
25	1500	50	3000	75	4500	100	6000	125	7500

Section IV - Unit Work:

Unit work evaluation is normally administered on a 1 to 1 basis though 2-3 can be assessed at once if time is limited. This phase takes place in and around the building, wherever there is a realistic setting to perform the tasks.

The student is first familiarized with the task (s) at hand. Then he is asked to perform it to the best of his ability, at which time the test administrator records aspects of the performance, writes subjective observations, and scores him according to the numerical grading system on the evaluation sheets for each unit work category. Each unit work category has its own basic information and evaluation sheets and the numerical scoring table is included at the end of this section.

Some 2-3 weeks following the first evaluation, retraining (if needed) is undertaken and the student is again evaluated. Again 2-4 weeks after the second evaluation, retraining is again undertaken, if needed, and a third evaluation is performed.

Each student is therefore evaluated three times on each applicable unit work category during his stay in the program. Not only are several evaluations more accurate but the element of retention of procedures may be assessed.

MAID SERVICE

1. Purpose:
   To evaluate the potential of a student to perform duties required in maid service operations.

2. Materials:
   a) Equipment-broom, push broom, dust mop, wet mop and wringer bucket, vacuum cleaner, dishes, step ladder, and bed with linens.
   b) Supplies-all purpose liquid cleaner, liquid disinfectant, bleach, ammonia, liquid hand soap for wall dispensers, furniture polish, dust cloths, and dish soap.

3. Evaluation Procedure:
   Maid Service unit work evaluation is given in three progressive phases commencing with an initial evaluation following only minimal training and instruction. Here the evaluator will observe initial performance, usually determined by past experience the resident may have received in the area, and basic interest which may or may not be exhibited by the resident for this type of activity.

   The second phase, which will generally take place 2-3 weeks later, begins with the evaluator giving more detailed instructions to the resident in the areas where needed. Thus the resident will have been given a structured set of guidelines with concrete directions to follow. Now the evaluator will observe his performance in following these instructions and his ability to carry out the work effectively making note of further weaknesses which may require additional training.

The final phase will take place shortly before termination of the resident from the program. Here, final instructions or training is given and the resident will be on his own to carry out the activity. The evaluator will rate his abilities in this area per the evaluation form on following pages. Particular emphasis should be placed on the areas found in Roman Numeral V on the evaluation form as well as the actual performance areas.

4. Major Evaluation Items:
   a) Performance of job specifics as outlined
   b) Performance time
   c) Performance quality

5. Time Standard:
   No norms established

MAID SERVICE
EVALUATION

Explanation of Grading:

1 = Excellent (Performs job exactly as instructed without the use of prompting and/or further training.)

2 = Good (Performs job as instructed with only occasional prompting.)

3 = Fair (Performs job with frequently required prompting and/or re-training.)

4 = Poor (Does not perform job as instructed, must have constant supervision and/or instruction.)

I. Floor and Carpet Care

A. Sweeping

1. Can use broom effectively

2. Sweeps thoroughly cleaning corners, moving furniture

3. Ability to follow directions

4. Needs no, occasional, frequent, or constant supervision

5. Supervisor: ____________________________

B. Vacuum Cleaning

1. Can assemble cleaner for use and select proper attachments

2. Use cleaner effectively

3. Needs no, occasional, frequent, or constant supervision

4. Supervisor: ______________________

D. Wet mopping of floors (by hand)

1. Mix cleaning water

2. Ability to prepare and gather supplies

3. Ability to mop

4. Needs no, occasional, frequent, or constant supervision

5. Supervisor: ______________________

II. Furniture and Woodwork Care

A. Dusting (cloth or duster)

1. Can dust furniture, window sills, etc.

2. Needs no, occasional, frequent, or constant supervision

3. Supervisor: ______________________

B. Polish furniture

1. Can apply and shine polish on furniture properly

2. Needs no, occasional, frequent, or constant supervision

3. Supervisor: ______________________

III. Kitchen Cleaning

A. Washing dishes

1. Cleaning sink

2. Gather and set up supplies

3. Prepare dishwater

4. Washing dishes

5. Drying dishes and storage: Cleaning counters/and putting away equipment

6. Needs no, occasional, frequent, or constant supervision

7. Supervisor: ______________________

IV. Bathroom Cleaning

1. Gather supplies and mix wash water

2. Shine mirrors

3. Clean fixtures

4. Clean surrounding walls

5. Replenish towel and soap dispenser: Empty trash

6. Mop floor

7. Put away supplies

8. Supervisor: ____________________________

V. Wash Windows

1. Gather supplies and mix wash water

2. Proper use of step ladder

3. Washing and drying windows

4. Needs no, occasional, frequent, or constant supervision

5. Supervisor: ______________________

VI. Change or Make Up Beds

1. Strip beds

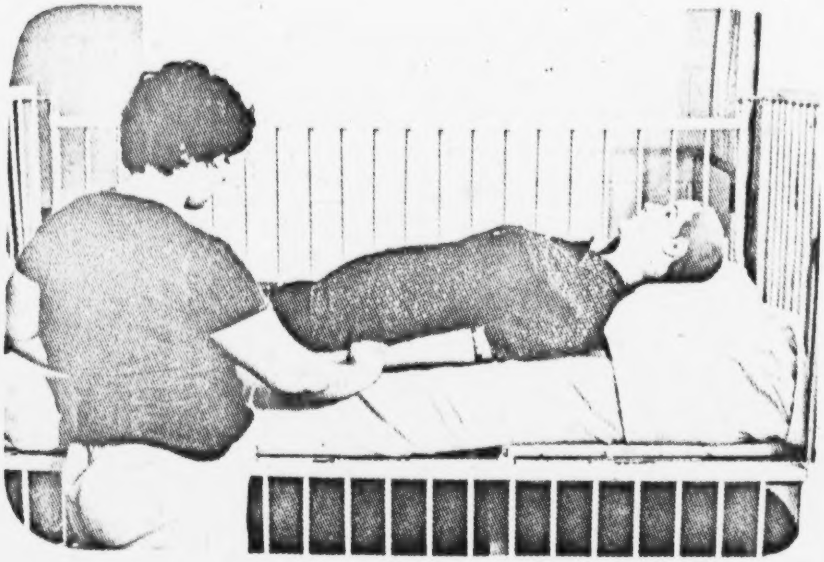
2. Re-make bed

3. Needs no, occasional, frequent, or constant supervision

4. Supervisor: ______________________

VII. Overall ability to perform assigned work, interest displayed, and any physical limitations

NURSES AIDE



1. Purpose:
   To evaluate the potential of student to perform duties required in nurses aide operations.

2. Materials:
   a) Equipment-beds, linenes, wash basin, maniquin, doll, clothes, diapers, diaper pins, laundry basket, bowl and spoon, mops and brooms, sponges and similar cleaning equipment.
   b) Supplies-soap, detergents, baby powder and baby bed.

3. Evaluation Procedure:
   Nurses Aide unit work evaluation is given in three progressive phases commencing with an initial evaluation following only minimal training and instruction. Here the evaluator will observe initial performance, usually determined by past experience the resident may have received in the area, and basic interest which may or may not be exhibited by the resident for this type of activity.

   The second phase, which will generally take place 2-3 weeks later, begins with the evaluator giving more detailed instructions to the resident in the areas where needed. Thus the resident will have been given a structured set of guidelines with concrete directions to follow. Now the evaluator will observe his performance in following these instructions and his ability to carry out the work effectively making note of further weaknesses which may require additional training.

The final phase will take place shortly before termination of the resident from the program. Here, final instructions or training is given and the resident will be on his own to carry out the activity. The evaluator will rate his abilities in this area per the evaluation form on following pages. Particular emphasis should be placed on the areas found in Roman Numeral V on the evaluation form as well as the actual performance areas.

4. Major Evaluation Items:
   a) Performance of job specifics as outlined
   b) Performance time
   c) Performance quality

5. Time Standard:
   No norms established

INDIVIDUAL PRODUCTION RECORD NAME ______________________

NURSE'S AIDE
EVALUATION

Explanation of Grading:

1 = Excellent (Performs job exactly as instructed without the use of prompting and/or further training.)

2 = Good (Performs job as instructed with only occasional prompting.)

3 = Fair (Performs job with frequently required prompting and/or retraining.)

4 = Poor (Does not perform job as instructed, must have constant supervision and/or instruction.)

1. Health and safety rules

2. Bed making

3. Cleaning beds and surrounding area

4. Laundry

5. Bathing

6. Dressing

7. Feeding

8. Moving patients

9. Cleaning and maintenance

10. Attitudes and interests

11. Additional comments

12. Needs no, occasional, frequent, or constant supervision

13. Supervisor: ______________________

YARD WORK

1. Purpose: To evaluate the potential of a student to perform the duties required in yard work operations.

2. Materials:
Lawnmower (power, push or both), supply of gasoling and oil, hedge clippers, gardening tools (hoe, shovel, spade, rake, hand diggers, etc.), water hose, lawn sprinklers, work gloves and grass clippers.

3. Evaluation Procedure:
Yard Work unit evaluation is given in three progressive phases commencing with an initial evaluation following only minimal training and instruction. Here the evaluator will observe initial performance, usually determined by past experience the resident may have received in the area, and basic interest which may or may not be exhibited by the resident for this type of activity.

The second phase, which will generally take place 2-3 weeks later, begins with the evaluator giving more detailed instructions to the resident in the areas where needed. Thus the resident will have been given a structured set of guidelines with concrete directions to follow. Now the evaluator will observe his performance in following these instructions and his ability to carry out the work effectively making note of further weaknesses which may require additional training.

The final phase will take place shortly before termination of the resident from the program. Here, final instructions or training is given and the resident will be on his own to carry out the activity. The evaluator will rate his abilities in this area per the evaluation form on following pages. Particular emphasis should be placed on the areas found in Roman Numeral V on the evaluation form as well as the actual performance areas.

4. Major Evaluation Items:
   a) Performance of job specifics as outlined
   b) Performance time
   c) Performance quality

5. Time Standard:
   No norms established

YARD WORK
EVALUATION

Explanation of Grading:

1 = Excellent (Performs job exactly as directed without the use of prompting and/or further training.)

2 = Good (Performs job as instructed with only occasional prompting.)

3 = Fair (Performs job with frequently required prompting and/or retraining.)

4 = Poor (Does not perform job as instructed, must have constant supervision and/or instruction.)

1. Can prepare and use power mower safely and effectively, checking oil and gasoline before beginning and cleaning up afterward

2. Uses adequate judgment in trimming shrubbery, proper and safe use of clippers

3. Can properly identify weeds in a flower bed and remove entire weed including roots, using proper tool

4. Can properly trim grass around sidewalks, trees, buildings, etc., without removing too much grass. Proper use of clippers and hoe in removal of grass

5. Can properly water specified area adequately without flooding. Has ability to properly place sprinkler and set water pressure as to not get excess water in streets, sidewalks, and on buildings

6. Can identify proper tools for jobs and use them as intended

7. Interest in this type of work and overall ability to perform. Include general comments

8. Supervisor: ______________________________

CUSTODIAL

1. Purpose:
   To evaluate the potential of a student to perform duties required in custodial operations.

2. Materials:
   Equipment-broom, push broom, dust mop, wet mop and wringer bucket, floor buffer and wet-dry vacuum.
   Supplies-all purpose liquid cleaner, liquid disinfectant, bleach, ammonia, liquid hand soap for wall dispensers, floor wax, powdered cleanser, floor sealer, buffing and stripping pads for floor buffer, several clean mop and dust mop heads, supply of tissue rolls, paper towels, and cleaning rags.

   If possible, all of the above should be kept on a janitor's cart for ease of mobility and ready availability.

3. Evaluation Procedure:
   Custodial unit work evaluation is given in three progressive phases commencing with an initial evaluation following only minimal training and instruction. Here the evaluator will observe initial performance, usually determined by past experience the resident may have received in the area, and basic interest which may or may not be exhibited by the resident for this type of activity.

The second phase, which will generally take place 2-3 weeks later, begins with the evaluator giving more detailed instructions to the resident in the areas where needed. Thus, the resident will have been given a structured set of guidelines with concrete directions to follow. Now the evaluator will observe his performance in following these instructions and his ability to carry out the work effectively, making note of further weaknesses which may require additional training.

The final phase will take place shortly before termination of the resident from the program. Here, final instructions or training is given and the resident will be on his own to carry out the activity. The evaluator will rate his abilities in this area per the evaluation form on following pages. Particular emphasis should be placed on the areas found in Roman Numeral V on the evaluation form as well as the actual performance areas.

4. Major Evaluation Items:
   a) Performance of job specifics as outlined
   b) Performance time
   c) Performance quality

5. Time Standard:
   No norms established

CUSTODIAL
EVALUATION

Explanation of Grading:

1 = Excellent (Performs job exactly as instructed without the use of prompting and/or further training.)

2 = Good (Performs job as instructed with only occasional prompting.)

3 = Fair (Performs job with frequently required prompting and/or re-training.)

4 = Poor (Does not perform job as instructed, must have constant supervision and/or instruction.)

I. Restrooms:

1. Gather Supplies

2. Fill and clean dispensers (toilet paper, soap, towels)

3. Clean sink (lavatory)

4. Clean Commode

5. Wash Walls

6. Clean Mirrors

7. Empty Waste Containers

8. Sweep Floor and Pickup Dirt

9. Mop Floor

10. Put away Supplies

11. Supervisor: ________________________

II. General Office Cleaning:

1. Pickup Paper on Floor and Place on Desk

2. Empty Ash Trays into Trash Cans and Empty Trash Cans

3. Dust Furniture, Books, Etc.

4. Sweep Floor and Pickup Dirt

5. Mop Floor

6. Buff Floor-If Needed

7. Supervisor: ______________________

III. Floor Care:

A. General:

1. Sweeping Floor & Dirt Pickup

2. Dust Mopping

3. Vacuum Cleaning w/Dry Vacuum

4. Wet-Dry Mopping

5. Supervisor: ______________________

B. Stripping and Waxing

1. Application of Stripper

2. Stripping w/Buffer

3. Use of Brush in Corners

4. Removal of Black Marks

5. Pickup of Excess Stripping Solution with Wet Vacuum

6. Application of Wax

7. Buffing for Shine

8. Supervisor: ______________________

IV. General Building Cleaning:

1. Wash Walls

2. Clean Air Vents

3. Window Washing w/solution

4. Clean Blackboards

5. Clean Water Fountain

6. General Trash Removal

7. Supervisor: ____________________

V. Overall Ability to Perform Assigned Work, Interest Displayed and Any Physical Limitations:

BUSBOY-BUS GIRL

1. Purpose:
   To evaluate the potential of a student to perform duties required in busboy/busgirl operations.

2. Materials:
   Bus cart, dish tubs, cleaning rags, drying towels, dish drainer, dish soap, dishes, glasses, eating utensils, etc., table for setting, cleaning solution for table, mop and mop bucket.

3. Evaluation Procedure:
   Evaluator will prepare table setting to be cleared. This should approximately as nearly as possible a table which has recently been left by a family upon completion of their meal.

   Busboy/busgirl unit work evaluation is given in three progressive phases commencing with an initial evaluation following only minimal training and instruction. Here the evaluator will observe initial performance, usually determined by past experience the resident may have received in the area, and basic interest which may or may not be exhibited by the resident for this type of activity.

   The second phase, which will generally take place 2-3 weeks later, begins with the evaluator giving more detailed instructions to the resident in the areas where needed. Thus the resident will have been given a structured set of guidelines with concrete directions to follow. Now the evaluator will observe his performance in following these instructions and his ability to carry out the work effectively making note of further weaknesses which may require additional training.

The final phase will take place shortly before termination of the resident from the program. Here, final instructions or training is given and the resident will be on his own to carry out the activity. The evaluator will rate his abilities in this area per the evaluation form on following pages. Particular emphasis should be placed on the areas found in Roman Numeral V on the evaluation form as well as the actual performance areas.

4. Major Evaluation Items:
   a) Performance of job specifics as outlined
   b) Performance time
   c) Performance quality

5. Time Standard:
   No norms established

BUS BOY-BUS GIRL
EVALUATION

Explanation of Grading:

1 = Excellent (Performs job exactly as instructed without the use of prompting and/or further training.)

2 = Good (Performs job as instructed with only occasional prompting.)

3 = Fair (Performs job with frequently required prompting and/or re-training.)

4 = Poor (Does not perform job as instructed, must have constant supervision and/or instruction.)

1. Gather materials and prepare dish cart (i.e. tub, cart, cloths)

2. Scrape dishes & clear tables

3. Clean & wipe table

4. Prepare dish water

5. Wash and rinse dishes

6. Dry dishes and store dishes

7. Re-set table

8. Return equipment to proper place and clean fixtures & counters

9. Wet Mopping Floors

   a) Mix cleaning water

   b) Ability to prepare & gather supplies

   c) Ability to mop

10. Overall ability to perform assigned work, interest displayed, and any physical limitations

11. Needs no, occasional, frequent, or constant supervision

12. Supervisor: ______________________________

Unit Work Numerical Scoring (Quartile)

Category	Q_1 Below Average	Q_2 Low Average	Q_3 High Average	Q_4 Above Average
Busboy-Busgirl	31 - 40	21 - 30	11 - 20	0 - 10
Maid Service	82 - 108	55 - 81	28 - 54	0 - 27
Nurses Aide	28 - 36	19 - 27	10 - 18	0 - 9
Yard Work	19 - 24	13 - 18	7 - 12	0 - 6
Custodial	100 - 132	67 - 99	34 - 66	0 - 33

Section V-Psychometric Test Battery

Before an evaluation is completed, a client may be given any number of psychometric tests which further aid us in determining his vocational ability. Not all of our clients are tested; generally, only those with an I.Q. of 50 or more, although there are exceptions made in special cases. We have in the past found that the cut-off point of 50 has been very realistic with regard to our purposes, though these may be administered to lower level in the future. These tests are administered on a one-to-one basis in a controlled testing situation for maximum possible performance. All of these tests are administered as designed, although we found it necessary to make slight modifications in some in order to properly meet our needs. On tests which were revised, as well as some of the others not modified, we have set up our own standards and norms using our students as the norm group. This gives us a more realistic distribution with which to work.

INDIVIDUAL TESTS

Revised Beta Examination

The Revised Beta Examination serves as a measure of general intellectual ability of persons who are relatively illiterate or non-English speaking. Although so designed, we find it a good tool in determining a student's basic performance level, as well as evaluating such areas as instruction following, comprehension, abstracting, and associated information. The performance I.Q. derived from this test correlate with the Wechsler performance score obtained from the Wechsler at a coefficient of .92. The subtests used in the test are: (1) Maze, (2) Digit-Symbol, (3) Error Recognition, (4) Formboard, (5) Picture Completion, and (6) Identity. Scores are always expressed as "Beta I.Qs." to differentiate them from simply "I.Qs."

This test is published by The Psychological Corporation, New York, New York.

Purdue Pegboard

The Purdue Pegboard is used to test for primarily two types of dexterity: (1) gross hand, finger, and arm movements, and (2) fine-finger dexterity. To begin with, pins are inserted individually in small holes with the right hand, left hand, and both hands together, in successive trials. In the final operation of the test, pins, cotters, and washers are assembled in each hole, thus involving simultaneous use of both hands. This test may be administered either one of two ways as explained in the examiners manual. We have found that the one trial method is quite sufficient for our purposes. However, either method may prove more successful according to the purpose and application intended. There are no satisfactory correlation coefficients given in the manual and it is recommended that the test be validated locally, due to the fact that the predictive validity of any test is highly situational.

This test is published by Science Research Associates, Inc., 259 East Erie Street, Chicago, Illinois 60611.

Academic Testing

This test was specifically designed for this program and is used to determine competency in the areas of simple mathematical operations-addition, subtraction, multiplication, and division. Other areas observed are those of coin identification and working with coin combinations and amount of change to be received in a simulated situation. Ability to complete number sequences is evaluated as well as ability to tell time. We do not have this

this test standardized nor has any attempt been made to show any correlation between it and other tests. We simply use it as a means to determine basic ability in the areas previously mentioned. When applicable, a sample of the clients handwriting or printing is generally obtained as well as their printing of the alphabet and counting as many objects as possible. This counting of objects is much more reliable than simply asking the client to count aloud to ten, twenty or one hundred. It is not at all uncommon for a student to be able to verbalize a one to ten count but be unable to transfer this to a practical situation (Place exactly ten pegs in holes, etc.).

Concepts and Meanings Test

This test was also designed at the center, and gives us information as to the student's ability to (1) take, comprehend, and follow directions, (2) understand the meaning of various operations, (3) and understand the meaning of certain concepts such as near and far, above and below, in front and behind, etc. The client is presented a series of four picture sequences and for each sequence he will be asked to mark the appropriate picture which exemplifies whatever condition has been requested. For example, if the client were asked to mark the picture which shows the boy "standing in front of the car," his correct response would be to mark the box which meets the conditions requested. The other three boxes may contain pictures of a boy standing behind the car, or sitting in front of the car, etc., but only one will be the correct response. Directions for each four picture sequences are printed under each set for those who can read or the directions may be read to those who cannot.

Vocational Picture Interest Inventory

This instrument is designed to elicit responses which will reveal where a client's vocational interest may lie. He is asked to choose one picture out of a group of three pictures in which he is most interested. Each picture depicts males or females working in different vocational areas. There are different forms for males and females consisting of varying job activities, the male form using seven vocational areas and the female using six. Vocational interest is determined by the number of student responses made for one particular area.

This test is published by Ralph L. Becker, Columbus State Institute, Columbus, Ohio.

Wells Concrete Directions Test

The Wells Concrete Directions Test consists of 12 operations designed to measure a client's ability to follow simple, single step operations, multi-step operations requiring the choice of an alternative direction. This, as well as the Concepts and Meanings Test, require the client to be familiar with such concepts as left and right, beside, far and near, etc.

It should be noted that while the operations used in our testing are identical to Wells', we have substituted certain objects involved in the testing procedure. Many of the original items created a state of confusion with some of our clients, and because the purpose of this test is to determine direction following ability and not object identification, we chose to use different items which are more universal with our client population.

We have no record of who publishes this test or where it is obtained.

Minnesota Rate of Manipulation Tests

These are a series of tasks designed to measure manual dexterity, manipulative ability, and direction following. Generally, each task consists of placing blocks into the holes of a board in a specified manner. Each is timed, preferably with a stopwatch, and the client should frequently be encouraged to perform at their optimum ability.

This test is published by American Guidance Service Inc., Circle Pines, Minnesota 55014.

Telephone Directory Exercise

Given the names of twenty businesses or individuals out of the local telephone directory, the student is required to furnish the address and telephone number by locating the name in the directory. The exercise is not timed but the number of correct responses is recorded. In scoring, attention should be paid to every detail to assure exact transfer of information.

This test was designed at the Center and is used to assess such factors as alphabetical sequence following, information duplication, and printing ability.

Posting Exercise

This test is designed to determine a student's ability to recognize errors in detail and sequencing of letters and numbers. It is comprised of a list of twenty-five pairs of words and a second list of twenty-five pairs of numbers. Each pair will either be identical or else there may be a minor variation in one of the pair. This variation will usually be only one letter in a word, or a single digit in a 3 to 12 digit number. For example in the following pairs:

Acme Brick Co. __✓__ Acme Brick Co.
6293523 __✓__ 6293523

both numbers or names are identical, thus the student should respond by placing a check mark (✓) in the space between them. If, however, a pair is not exactly the same (6293523 ____6292523), the space should be left blank. The student is instructed to work as fast as possible without making mistakes.

This assessment tool was designed at the Center.

LEARNING

(Based on Competitive Worker Norms)

EXPERIMENTAL GROUP

RING & PEG

% Gaining = 48

% Little/No Change = 36

% Loss = 16

N = 50

SECOND ADMINISTRATION

% COMPETITIVE $\overline{X}$

100									1 .02	1 .02
90				1 .02			1 .02	4 .08	3 .06	1 .02
80				1 .02	1 .02		1 .02	1 .02		
70			1 .02	1 .02		2 .04	2 .04			
60				2 .04	2 .04	2 .04				
50				4 .08	4 .08	1 .02	1 .02			
40		1 .02	1 .02	4 .08	2 .04	1 .02				
30				1 .02		1 .02				
20		1 .02								
10										
	10	20	30	40	50	60	70	80	90	100

% Competitive $\overline{X}$

First Administration

LEARNING

(Based on Competitive Worker Norms)

EXPERIMENTAL GROUP

SIZED DOWEL

% Gaining = 50

% Little/No Change = 26

% Loss = 24

N = 50

SECOND ADMINISTRATION % COMPETITIVE $\overline{X}$	10	20	30	40	50	60	70	80	90	100
100								1 .02	2 .04	
90								2 .04	1 .02	
80			1 .02	3 .06	1 .02					1 .02
70		1 .02								
60			1 .02	2 .04	1 .02					
50				3 .06	1 .02	1 .02	1 .02			
40		3 .06	1 .02	6 .12	1 .02	3 .06				
30		1 .02	2 .04	1 .02	1 .02					
20	2 .04	2 .04	2 .04							
10	1 .02	1 .02								

% Competitive $\overline{X}$

First Administration

SECOND ADMINISTRATION

% COMPETITIVE $\overline{X}$

	10	20	30	40	50	60	70	80	90	100
100								1 .02		
90										
80				1 .02				1 .02		1 .02
70			1 .02	1 .02						
60			1 .02	3 .06	2 .04		1 .02		1 .02	
50			1 .02	1 .02						
40		2 .04	4 .08	2 .04	1 .02					
30		1 .02	3 .06	2 .04	1 .02					
20	2 .04	6 .12	3 .06	1 .02						
10	3 .06	2 .04								

% Competitive $\overline{X}$

First Administration

LEARNING

(Based on Competitive Worker Norms)

EXPERIMENTAL GROUP

SORTING #1

% Gaining = 43

% Little/No Change = 31

% Loss = 26

N = 49

SECOND ADMINISTRATION % COMPETITIVE $\overline{X}$	10	20	30	40	50	60	70	80	90	100
100							1 .02			
90										
80		1 .02	1 .02	2 .04			1 .02			
70				3 .06	3 .06	1 .02				
60	1 .02		1 .02	1 .02		2 .04				
50		1 .02	3 .06	1 .02		1 .02		1 .02		
40	1 .02	2 .04	6 .12	6 .12		1 .02	1 .02			
30	1 .02	1 .02	1 .02	1 .02						
20		1 .02								
10	1 .02	1 .02								

% Competitive $\overline{X}$

First Administration

LEARNING

(Based on Competitive Worker Norms)

EXPERIMENTAL GROUP

SORTING #2

% Gaining = 64

% Little/No Change = 24

% Loss = 12

N = 50

SECOND ADMINISTRATION
% COMPETITIVE $\overline{X}$

	10	20	30	40	50	60	70	80	90	100
100										
90										
80					1 .02		1 .02	1 .02		
70							2 .04	1 .02		
60				1 .02		1 .02	1 .02			
50			2 .04		1 .02	1 .02				
40	2 .04	2 .04	2 .04	7 .14				1 .02		
30	2 .04	3 .06			1 .02					
20	4 .08	3 .06			1 .02					
10	1 .02									

% Competitive $\overline{X}$
First Administration

LEARNING

(Based on Competitive Worker Norms)

EXPERIMENTAL GROUP

PIN, PEG, BLOCK

% Gaining = 58
% Little/No Change = 32
% Loss = 10

N = 50

LEARNING

(Based on Competitive Worker Norms)

EXPERIMENTAL GROUP

PIN DOWEL TREE

% Gaining = 61

% Little/No Change = 33

% Loss = 6

N = 46

SECOND ADMINISTRATION

% COMPETITIVE $\overline{X}$

	10	20	30	40	50	60	70	80	90	100
100										
90							1 .02			
80						1 .02	1 .02			
70	1 .02	1 .02								
60				1 .02						
50			2 .04							
40	1 .02	5 .11				1 .02				
30	4 .09	1 .02	1 .02							
20	6 .13	3 .06			1 .02					
10	11 .24		1 .02							

% Competitive $\overline{X}$

First Administration

LEARNING

(Based on Competitive Worker Norms)

EXPERIMENTAL GROUP

NUT, WASHER, BOLT

% Gaining = 49

% Little/No Change = 30

% Loss = 21

N = 43

SECOND ADMINISTRATION

% COMPETITIVE $\overline{X}$

	10	20	30	40	50	60	70	80	90	100
100		1 .02								
90										
80					1 .02	1 .02		1 .02		
70			1 .02	2 .05	2 .05					
60			1 .02			1 .02	1 .02			
50		2 .05				1 .02				
40		3 .07	5 .12	7 .16			2 .05	1 .02		
30	1 .02	1 .02	3 .07	1 .02				1 .02		
20		1 .02	2 .05							
10										

% Competitive $\overline{X}$

First Administration

SECOND ADMINISTRATION % COMPETITIVE $\overline{X}$	10	20	30	40	50	60	70	80	90	100
100										1 .02
90					1 .02	1 .02		2 .04		2 .04
80						2 .04				
70			1 .02	1 .02	1 .02	1 .02	3 .06	1 .02		
60	1 .02		1 .02	1 .02						
50					2 .04	1 .02				
40		3 .06	3 .06	4 .08		2 .04		1 .02	1 .02	
30	1 .02	3 .06		1 .02						
20		1 .02	1 .02			1 .02				
10	1 .02		1 .02							

% Competitive $\overline{X}$

First Administration

LEARNING

(Based on Competitive Worker Norms)

EXPERIMENTAL GROUP

SIZED BOLT

% Gaining	= 50
% Little/No Change	= 25
% Loss	= 25

N = 49

LEARNING

(Based on Competitive Worker Norms)

EXPERIMENTAL GROUP

BLOCK BOLT ASSEMBLY

% Gaining = 54

% Little/No Change = 29

% Loss = 17

N = 48

SECOND ADMINISTRATION

% COMPETITIVE $\overline{X}$

	10	20	30	40	50	60	70	80	90	100
100									1 .02	
90					1 .02					
80		1 .02		1 .02	2 .04			1 .02		
70			2 .04	1 .02	1 .02				1 .02	
60			1 .02	1 .02	2 .04	2 .04				
50		3 .06		3 .06	1 .02					
40	1 .02	3 .06		4 .08	3 .06					
30			1 .02		2 .04				1 .02	
20		3 .06								
10	2 .04	1 :02								

% Competitive $\overline{X}$

First Administration

LEARNING

(Based on Competitive Worker Norms)

EXPERIMENTAL GROUP

BI-MANUAL

% Gaining = 50

% Little/No Change = 37

% Loss = 13

N = 48

SECOND ADMINISTRATION

% COMPETITIVE $\overline{X}$

100								1 .02	1 .02	
90								1 .02	1 .02	
80					2 .04	1 .02		1 .02		
70		1 .02		1 .02	2 .04	2 .04	2 .04	1 .02		
60				2 .04		1 .02				
50			3 .06	3 .06	4 .08			1 .02		
40			3 .06	4 .08						
30		1 .02	3 .06	2 .04	1 .02					
20		1 .02	1 .02							
10	1 .02									
	10	20	30	40	50	60	70	80	90	100

% Competitive $\overline{X}$

First Administration

LEARNING

(Based on Competitive Worker Norms)

EXPERIMENTAL GROUP

PIN-POP-RIVET

SECOND ADMINISTRATION

% COMPETITIVE $\overline{X}$

	10	20	30	40	50	60	70	80	90	100
100						1 .03				
90				1 .03			3 .08			
80					2 .05			2 .05		
70				2 .05	1 .03		1 .03	1 .03		
60				4 .10		1 .03				
50		1 .03			2 .05		1 .03			
40		1 .03	1 .03	2 .05	2 .05	1 .03				
30	1 .03	1 .03	2 .05	2 .05	1 .03					
20				1 .03	1 .03					
10										

% Competitive $\overline{X}$

First Administration

% Gaining = 48

% Little/No Change = 26

% Loss = 26

N = 39

LEARNING

(Based on Competitive Worker Norms)

EXPERIMENTAL GROUP

SCREWDRIVER

% Gaining = 35

% Little/No Change = 25

% Loss = 40

N = 20

SECOND ADMINISTRATION

% COMPETITIVE $\overline{X}$

100										
90			1 .05							1 .05
80										
70										1 .05
60					1 .05	2 .10		1 .05		
50			1 .05	1 .05	1 .05					
40		1 .05	1 .05	2 .10	1 .05					1 .05
30	1 .05			1 .05	1 .05					
20				1 .05						
10										
	10	20	30	40	50	60	70	80	90	100

% Competitive $\overline{X}$

First Administration

SECOND ADMINISTRATION

% COMPETITIVE $\overline{X}$

100				1 .02						
90				1 .02				1 .02		1 .02
80					1 .02		1 .02	1 .02		
70								1 .02	1 .02	
60				4 .08	1 .02		1 .02			
50			1 .02	3 .06		1 .02		1 .02		
40	2 .04	2 .04	3 .06	5 .10	1 .02			1 .02		
30	1 .02	1 .02	3 .06	2 .04						
20	1 .02	3 .06								
10			1 .02						1 .02	
	10	20	30	40	50	60	70	80	90	100

% Competitive $\overline{X}$

First Administration

LEARNING

(Based on Competitive Worker Norms)

EXPERIMENTAL GROUP

WRENCH EXERCISE

% Gaining = 50

% Little/No Change = 25

% Loss = 25

N = 48

SECOND ADMINISTRATION

% COMPETITIVE $\overline{X}$

100								1 .02		
90									1 .02	
80				1 .02			1 .02	1 .02		
70				1 .02	1 .02	2 .04	1 .02	1 .02		1 .02
60			1 .02		1 .02		1 .02			
50	1 .02	1 .02		3 .07	2 .04	1 .02				
40	1 .02	1 .02	2 .04	3 .07	3 .07				1 .02	
30		1 .02	3 .07	1 .02						
20		5 .11		1 .02						
10										
	10	20	30	40	50	60	70	80	90	100

% Competitive $\overline{X}$

First Administration

LEARNING

(Based on Competitive Worker Norms)

EXPERIMENTAL GROUP

EYEBOLT ASSEMBLY

% Gaining = 42

% Little/No Change = 36

% Loss = 22

N = 45

LEARNING

(Based on Competitive Worker Norms)

EXPERIMENTAL GROUP

EYEBOLT DIS-ASSEMBLY

% Gaining = 57

% Little/No Change = 17

% Loss = 26

N = 42

SECOND ADMINISTRATION

% COMPETITIVE $\overline{X}$

100										
90									1 .02	1 .02
80				1 .02	1 .02		1 .02			
70			2 .05	2 .05			2 .05			
60										
50		1 .02		1 .02						
40	4 .10	1 .02	4 .10		1 .02	2 .05	1 .02			
30		4 .10			1 .02	1 .02	1 .02			
20	1 .02	2 .05		2 .05	1 .02					
10	1 .02		1 .02							
	10	20	30	40	50	60	70	80	90	100

% Competitive $\overline{X}$

First Administration

LEARNING

(Based on Competitive Worker Norms)

EXPERIMENTAL GROUP

BENNETT HAND TOOL

% Gaining = 50
% Little/No Change = 31
% Loss = 19

N = 16

SECOND ADMINISTRATION

100										
90										
80										
70				1 .06						
60										
50										
40		2 .13				1 .06				
30	1 .06	2 .13	2 .13							
20	2 .13				1 .06					
10	3 .19	1 .06								
	10	20	30	40	50	60	70	80	90	100

% COMPETITIVE $\overline{X}$
FIRST ADMINISTRATION

LEARNING

(Based on Competitive Worker Norms)

EXPERIMENTAL GROUP

PACKAGING EXERCISE

% Gaining = 51

% Little/No Change = 26

% Loss = 23

N = 43

SECOND ADMINISTRATION

% COMPETITIVE $\overline{X}$

100										
90									2 .05	
80				1 .02	1 .02					
70		1 .02							1 .02	
60		1 .02		1 .02	1 .02					
50			1 .02		1 .02					
40	2 .05	4 .09	1 .02	1 .02	1 .02	1 .02	2 .05			
30	2 .05	2 .05								
20	4 .09	1 .02	2 .05	3 .07						
10	6 .14									
	10	20	30	40	50	60	70	80	90	100

% Competitive $\overline{X}$

First Administration

FINAL ADMINISTRATION

% COMPETITIVE $\overline{X}$

100								1 .04		
90			1 .04			1 .04	1 .04			
80						2 .07		1 .04		
70				1 .04						
60		1 .04		2 .07	1 .04					
50		1 .04		1 .04						
40	1 .04	2 .07	3 .12	3 .12						
30		2 .07								
20		1 .04								
10										
	10	20	30	40	50	60	70	80	90	100

% Competitive $\overline{X}$

First Administration

LEARNING

(Based on Competitive Worker Norms)

EXPERIMENTAL GROUP

CABLE CLAMPS

% Gaining	= 81
% Little/No Change	= 19
% Loss	= 0

N = 26

LEARNING

(Based on Competitive Worker Norms)

EXPERIMENTAL GROUP

COMPONENT ASSEMBLY

% Gaining = 76

% Little/No Change = 20

% Loss = 4

N = 25

FINAL ADMINISTRATION

% COMPETITIVE $\overline{X}$

100				1 .04		2 .08				
90										
80		1 .04	1 .04	1 .04	1 .04	1 .04				
70			1 .04				1 .04			
60										
50	1 .04			1 .04						
40	1 .04	2 .08	2 .08	4 .16						
30	1 .04	1 .04								
20	1 .04									
10		1 .04								
	10	20	30	40	50	60	70	80	90	100

% Competitive $\overline{X}$

First Administration

FINAL ADMINISTRATION

% COMPETITIVE $\overline{X}$

	10	20	30	40	50	60	70	80	90	100
100				2 .11						
90										
80			1 .05					1 .05		
70										
60			1 .05	2 .11						
50				3 .16						
40		1 .05	2 .11	3 .16						
30	1 .05	1 .05	1 .05							
20										
10										

% Competitive $\overline{X}$

First Administration

LEARNING

(Based on Competitive Worker Norms)

EXPERIMENTAL GROUP

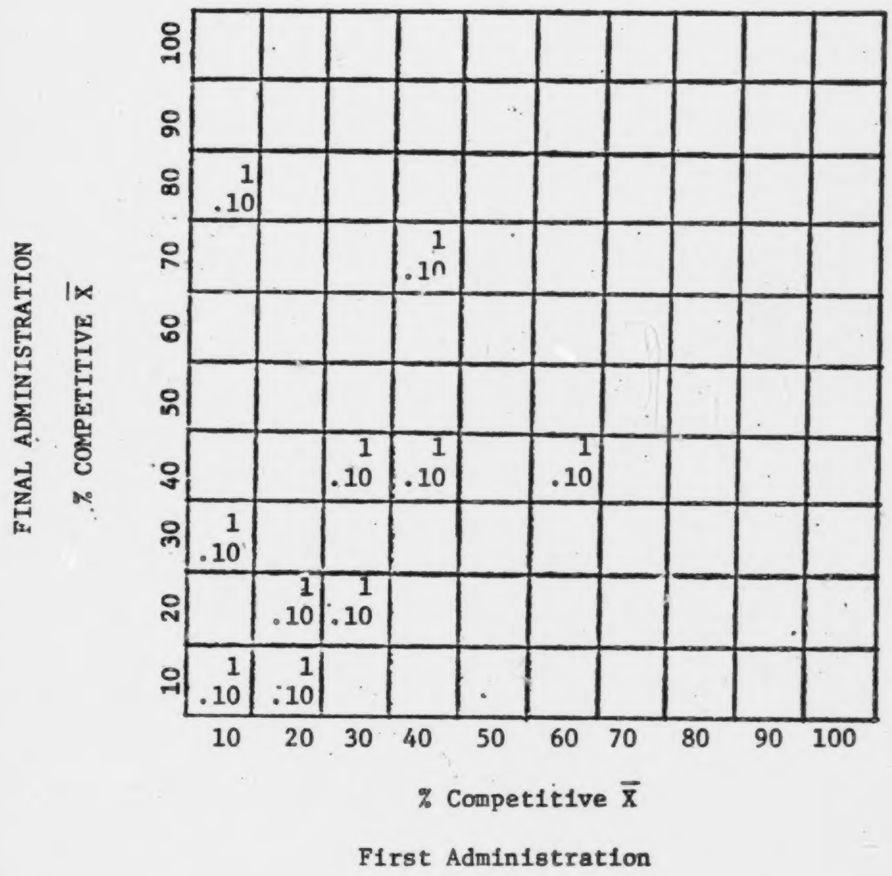
TRANSISTOR PACKAGING

% Gaining = 74

% Little/No Change = 26

% Loss = 0

N = 19



LEARNING

(Based on Competitive Worker Norms)

EXPERIMENTAL GROUP

TINKER TOY BRIDGE

% Gaining = 40

% Little/No Change = 30

% Loss = 30

N = 10

FINAL ADMINISTRATION

% COMPETITIVE $\overline{X}$

	10	20	30	40	50	60	70	80	90	100
100							1 .05			
90								1 .05		
80	1 .05			2 .10						
70						1 .05	3 .15	1 .05		
60				1 .05	1 .05					
50				1 .05						
40	1 .05		2 .10	1 .05	1 .05					
30	1 .05									
20	1 .05									
10										

% Competitive $\overline{X}$

First Administration

LEARNING

(Based on Competitive Worker Norms)

EXPERIMENTAL GROUP

7-WIRE FLOOR MAT

% Gaining = 70

% Little/No Change = 20

% Loss = 10

N = 20

LEARNING

(Based on Competitive Worker Norms)

EXPERIMENTAL GROUP

TEK FASTENER

% Gaining	= 66
% Little/No Change	= 24
% Loss	= 10

N = 29

FINAL ADMINISTRATION

% COMPETITIVE $\overline{X}$

	10	20	30	40	50	60	70	80	90	100
100							1 .03	1 .03		
90			1 .03	1 .03						
80				1 .03	1 .03					
70		1 .03		1 .03	1 .03	1 .03				
60			1 .03	2 .07		1 .03				
50			1 .03	1 .03	1 .03		1 .03			
40	1 .03		1 .03	1 .03						
30	1 .03	1 .03	2 .07							
20		2 .07	2 .07							
10										

% Competitive $\overline{X}$

First Administration

LEARNING

(Based on Competitive Norms)

EXPERIMENTAL GROUP

FIGURE SORT

% Gaining = 34

% Little/No Change = 44

% Loss = 22

N = 18

FINAL ADMINISTRATION

% COMPETITIVE $\overline{X}$

	10	20	30	40	50	60	70	80	90	100
100										
90										
80										
70		1 .055					1 .055			
60				1 .055	1 .055					
50		1 .055			1 .055					
40		1 .055		5 .275	2 .11		1 .055			
30			1 .055		1 .055					
20	1 .055									
10										

% Competitive $\overline{X}$

First Administration

LEARNING

(Based on Competitive Norms)

EXPERIMENTAL GROUP

SHAPE & FIGURE SORTS

% Gaining = 44

% Little/No Change = 25

% Loss = 31

N = 32

FINAL ADMINISTRATION

% COMPETITIVE $\overline{X}$

	10	20	30	40	50	60	70	80	90	100
100										
90										
80						1 .03				
70										
60										
50			2 .06	1 .03						
40	1 .03		2 .06	2 .06						
30	6 .18	1 .03	3 .09	5 .15	1 .03					
20		2 .06	2 .06	1 .03						
10	1 .03	1 .03								

% Competitive $\overline{X}$

First Administration

LEARNING

(Based on Competitive Worker Norms)

EXPERIMENTAL GROUP

BOX I

% Gaining = 78

% Little/No Change = 13

% Loss = 9

N = 32

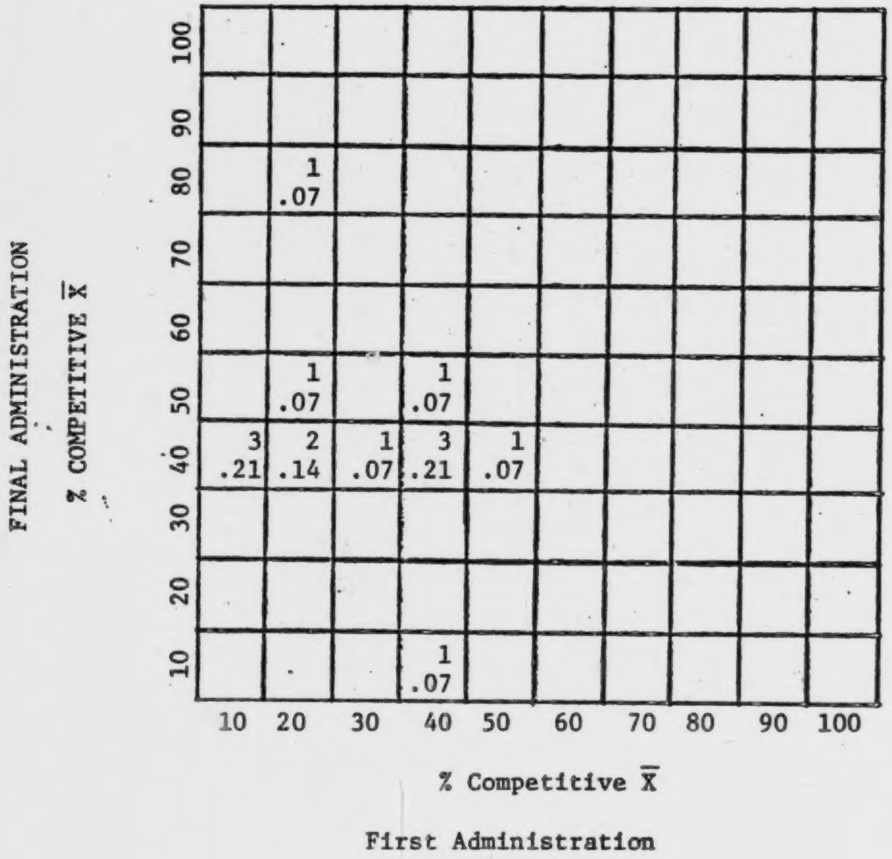
FINAL ADMINISTRATION

% COMPETITIVE $\overline{X}$

	10	20	30	40	50	60	70	80	90	100
100										
90		1 .03								
80	2 .06									
70										
60										
50	1 .03	1 .03	2 .06							
40	7 .22	4 .13	4 .13	3 .09		1 .03				
30	1 .03									
20	2 .06	1 .03		2 .06						
10										

% Competitive $\overline{X}$

First Administration



LEARNING

(Based on Competitive Worker Norms)

EXPERIMENTAL GROUP

BOX II

% Gaining	= 65
% Little/No Change	= 21
% Loss	= 14

N = 14

GLOSSARY OF TERMS

Adaptation to Work Environment-Ability to perform in conjunction with the rules and regulations and to successfully cope with the structure of the job environment.

Aiming-The ability to rapidly and correctly direct the alignment of two or more items with another.

Alertness-Quick to perceive and act.

Arm-Hand Coordination-Ability to coordinately move the arm and hand precisely and easily.

Assembly from Complex Model-Construction of an object utilizing a previously completed unit of the same type and duplicating it accurately.

Attention Span-The period of time that one can attend to a particular task.

Attention to Fine Detail-Extended treatment or attention to the order of particular items.

Bi-Manual Dexterity-The ability to use hands simultaneous with one another in a skillful and easy fashion.

Competition-The striving on the part of two or more persons for the same object especially for the goal of being superior--This may be on an individual or group basis.

Conceptualization-The ability to form and understand the use of symbols or objects and their relationships.

Consistency of Work Effort-Maintenance of a constant level or profuctivity.

Cooperation-The ability and willingness to work with others toward specific goals.

Coordination-Muscular response to stimuli in a smooth accurate and appropriate manner.

Decision Making and Maintenance-Ability to choose between the best of alternatives and to sustain endeavor toward its completion.

Depth Perception-The ability to accurately perceive or recognize differences and similarities in distance of objects in relation to the subject and/or other objects.

Direction Following-Simple ability to follow one and/or two step instructions multi-level ability to follow a series of two or more instructions.

Discrimination-The ability to perceive or recognize similarities or differences between two or more entities (in utilization of any or all of the senses).

Emotional Tolerance-The ability to maintain normal productivity in the face of stress.

Fine Fingering Ability-Ability to move the fingers and manipulate small objects rapidly and accurately.

Gross Fingering Ability-Ability to manipulate large objects (with the fingers) in precise movements.

Hand-Eye Coordination-The ability to accurately move hands coordinately with visual stimuli.

Hand-Eye-Foot Coordination-Ability to move hand and foot coordinately with each other in accordance with visual stimuli.

Judgement-The process of discovering or asserting an objective or intrinsic relationship between two or more entities.

Manual Dexterity-The ability to use hands skillfully and easily.

Maturity-Ability to accept assigned responsibility and carry it through to its completion.

Motivation-The drive an individual possesses toward undertaking or completing a specific goal (s).

Part to Whole Relationship-Ability to visualize or extend from a sub-unit to a complete system.

Power Machine Usage-The ability to safely utilize power machinery.

Problem Solving Ability-The ability to find a logical solution to remove obstacles which stand in the way of completing a task(s).

Quality-Degree of excellence.

Quantity-The amount or number of units a student can turn out in a specified time period.

Range of Motion-Degree of arm extension and/or rotation necessary for the completion of a task.

Reaction to Criticism-The manner in which an individual accepts or rejects criticism.

Reasoning-The ability to think logically.

Repetitious Small Assembly-The ability to assembly small parts into completed units for an extended period of time.

Retention-Ability to perform a learned task after an interval in which the performance has not taken place.

Sequence Following-Ability to repeatedly follow a logical series of steps in the performance of a task.

Small Part Alignment-The proper positioning or state of adjustment of small parts in relation to one another.

Standing Endurance-Ability to remain standing without support for an extended period of time.

Temperment-Range of emotional responses.

Use of Tools-Ability to utilize basic tools with efficiency and accuracy.

Work Interest-An attitude or feeling that the performance of a task makes a difference and is of concern to oneself.

CORRELATIONAL DATA

TEST/ACTIVITY	rho	df	t		t_x
A. Pre-Skills					
1. Pounding Bench	Not timed				
2. Color & Size	Not timed				
3. Pattern Duplication	Not timed				
4. Ring & Peg	.7677	25	18.5633		3.725
5. Sized Dowel	.7138	25	15.6254		3.725
6. Sort #1	.8788	24	27.9486		3.745
7. Sort #2	.6626	25	13.7025		3.725
8. Pin-Peg-Block	.8024	25	20.8315		3.725
9. Pin-Dowel-Tree	.6412	24	12.6703		3.745
10. Nut-Washer-Bolt	.1420	21	2.0281	**	1.721
11. Sized Bolt	.7123	24	15.3948		3.745
12. Block Bolt Assembly	.6335	24	12.4053		3.745
13. Bi-Manual	.6146	24	11.8128		3.745
14. Pin-Pop-Rivet Board	.6539	18	11.2573		3.922
15. Screwdriver	.4985	19	7.7131		3.883
16. Wrench Exercise	.6270	23	11.9352		3.767
17. Eyebolt Assembly	.6201	20	10.8946		3.850
18. Eyebolt Dis-Assembly	.4061	17	5.6208		3.965
19. Bennett Hand Tool	.6364	10	7.8279		4.587
20. Packaging Exercise	.6883	21	13.3309		3.819
B. Job Samples					
1. Cable Clamps	.7373	25	16.9025		3.725
2. Component Assembly	.6138	24	11.7888		3.745
3. Transistor Pack	.5193	18	7.9209		3.922
4. Tinker Toy Bridge	.3545	9	3.3922	*	3.250
5. 7-Wire Mat	.5237	19	8.2629		3.8883
6. Tek Fastener	.6372	28	13.5865		3.674
7. Box I	.0540	31	.9525	****	.85
8. Box II	.1440	13	1.5942	***	1.35
9. Color Sort	Data Incomplete				
10. Shape Sort	Data Incomplete				
11. Figure Sort	Data Incomplete				
12. Figure-Shape Sort	Data Incomplete				
13. Domino Maze	Data Incomplete				
14. Paraquetry Blocks	Data Incomplete				

All T_x Are At .001 level unless marked w/asterick

*	.01 Level
**	.1 Level
***	.2 Level
****	.4 Level